



CREATING GOOD JOBS, A CLEAN ENVIRONMENT, AND A FAIR AND THRIVING ECONOMY

## BlueGreen Alliance

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### Response to Request for Information (RFI): Innovative Advanced Transformers

The BlueGreen Alliance (BGA) unites labor unions and environmental organizations to solve today's environmental challenges in ways that create and maintain quality jobs and build a stronger, fairer economy. Our partnership is firm in its belief that we don't have to choose between a good job and a clean environment—we can and must have both. We are thankful to President Joe Biden and U.S. Department of Energy (DOE) Secretary Jennifer Granholm for prioritizing upgrades to the electric grid to ensure clean power is delivered to communities across the country, while also ensuring our infrastructure is resilient and reliable and delivers benefits to workers and communities. We welcome the invitation from the DOE Office of Electricity (OE) for input on the implementation of the Transformer Resilience and Advanced Components (TRAC) Program, the Applied Grid Transformation Solutions (AGTS), and grid-related programs funded through the Bipartisan Infrastructure Law (BIL) and the Inflation Reduction Act. These programs offer a real opportunity to address the climate crisis, support and create good union jobs, advance racial and economic justice, and build a stronger, fairer economy.

Investing in Large Power Transformer (LPT) manufacturing is an excellent opportunity to put people to work in the clean economy. Most of the jobs associated with transformer manufacturing are already union jobs. New federal investments going towards supporting a build out of the domestic LPT supply chain should continue to reinforce these high-road, family sustaining jobs.

Expanded LPT manufacturing also could help to counter the racial and economic inequality fed by manufacturing job losses, if investments and incentives are appropriately targeted. Numerous studies find that the decline in U.S. manufacturing under unfair trade policies has contributed to income inequality.<sup>1</sup> Black, Hispanic, Asian American/Pacific Islander (AAPI), and white workers without a college degree all earn substantially more in manufacturing than in non-manufacturing industries.<sup>2</sup> Laid-off manufacturing workers have been forced to compete for lower-paying jobs, putting downward pressure on middle class wages across the economy.

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<sup>1</sup> International Monetary Fund, *Manufacturing Jobs and Inequality: Why is the U.S. Experience Different?*, September 2019. Available online: <https://www.imf.org/en/Publications/WP/Issues/2019/09/13/Manufacturing-Jobs-and-Inequality-Why-is-the-U-S-47001>

<sup>2</sup> Ibid

Less reported is the fact that the manufacturing decline and resulting pay cuts have disproportionately impacted Black workers and other workers of color. A recent report by EPI found that “the loss of manufacturing jobs has been particularly devastating for Black and Hispanic workers and other workers of color, who represent a disproportionate share of those without a college degree, and for whom discrimination has limited access to better-paying jobs.”<sup>3</sup> Black manufacturing employment has fallen more than 30% since the late 1990s, contributing to the Black-white wage gap.

## **Category 7: Power Transformer Supply Chain Development**

**(27) Past supply chain assessments have identified concerns related to the availability of materials and/or components. In your experience, what are the highest priority power transformer supply chain gaps within the transformer manufacturing industry?**

**(28) What are the current gaps of technologies or methods needed to enable increased domestic production of power transformers and their components?**

**(29) Are there power transformer materials and/or components that would be crucial for establishing a robust domestic power transformer manufacturing base that would not typically be procured domestically, and any potential barriers to domestic procurement, such as lack of availability or cost?**

## **Transformer Supply Chain Analysis**

LPTs serve an essential role in powering the U.S. economy. They are a significant feature of our electric grid with 90% of electricity produced in the U.S. passing through them at 55,000 regional substations located across the country. However, today’s network of transmission and distribution equipment, including LPTs, still contains components from decades ago. Varying age, condition, and capacities make it difficult to provide reliable power, and unreliable equipment, severe weather, and overloading causes power disruptions and damages to electric equipment. Unfortunately, as climate change gets worse, so does the problem. More than half of major power outages between 2000 and 2016 were caused by natural disasters such as hurricanes, heat waves, and wildfires. Demand for LPTs is projected to grow, as expanding the transmission grid and replacing aging infrastructure will be critical to building out clean energy and putting the U.S. on a pathway to reduce its emissions to net zero by 2050.

An analysis of the domestic LPT supply chain conducted by BGA found significant gaps among key materials needed for a robust domestic supply. There are currently eight facilities manufacturing LPTs in the U.S., but those facilities supply only 18% of domestic demand. Grain-oriented electrical steel (GOES), a significant input for LPTs, is a weak point in the supply chain. There is currently only one domestic facility that is producing

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<sup>3</sup> Economic Policy Institute, *Botched policy responses to globalization have decimated manufacturing employment with often overlooked costs for Black, Brown, and other workers of color*. Available online: <https://www.epi.org/publication/botched-policy-responses-to-globalization/?emci=57b761d1-87cc-ec11-997e-281878b83d8a&emdi=4ddd7a8c-8fcc-ec11-997e-281878b83d8a&ceid=3515713>

GOES and, as a result, 88% of it was imported in 2019.<sup>4</sup> An additional factor impacting GOES supply is the emerging electric vehicle (EV) market that consumes non-oriented electrical steel (NOES). Electrical steels such as GOES and NOES are both produced in the same facilities and there is a domestic trend towards investing in NOES production—further constraining the supply of GOES. A recent Wall Street Journal article noted that Metals Technology Consulting Inc., “forecasts global demand for high-grade electrical steel to reach 2.8 million metric tons by 2027, about 300,000 metric tons more than the global supply, unless more production capacity for high-grade electrical steel is added.”<sup>5</sup> Demand for GOES and NOES in North America is anticipated to reach 780,000 tons by 2030, but current supply in the U.S. is only 116,000 tons.<sup>6</sup>

The dumping of underpriced GOES from Asia to Mexico and Canada for import into the United States has caused tumult in the electrical steel market for decades. In 2019, the import penetration for GOES within transformer components alone was about 44%, highlighting the intense competition faced from foreign producers. Following this trend, many major transformer companies have located manufacturing facilities in Mexico where they face lower labor costs and duty-free access to the U.S. market. Essentially all exports of transformer components from Mexico and Canada are to the United States and virtually no GOES is imported from the U.S. to these countries. Mexico even has domestic GOES content requirements for the transformers it manufactures, despite possessing no indigenous production capability for GOES.<sup>7</sup>

Due to this offshoring of transformer and component production, the GOES contained within these imports is able to avoid tariffs and benefits from lower labor costs, thereby undercutting the domestic electrical steel industry. This means that the import of GOES, transformers, and components all contribute downward pressure on the domestic electrical steel industry. Forced to compete with competitors who face lower costs, domestic electrical steel manufacturers are being pushed to cut costs (including labor standards), and therefore, are also disincentivized from making big investments to increase production capacity.

The current lack of supply of LPTs and critical inputs is not only a barrier to building out transmission and modernizing the grid, but as the U.S. Federal Energy Regulatory Commission (FERC) has written, it also presents a national security risk, as we are reliant on foreign suppliers for the majority of our grid infrastructure.<sup>8</sup> Supply chain breakdowns

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<sup>4</sup> Department of Energy, *Electric Grid Supply Chain Review: Large Power Transformers and High Voltage Direct Current Systems*, February 24, 2022. Available online: <https://www.energy.gov/sites/default/files/2022-02/Electric%20Grid%20Supply%20Chain%20Report%20-%20Final.pdf>

<sup>5</sup> Wall Street Journal, *The Paper-Thin Steel Needed to Power Electric Cars is in Short Supply*, March 27, 2023. Available online: <https://www.wsj.com/articles/the-paper-thin-steel-needed-to-power-electric-cars-is-in-short-supply-dbd2a78e>

<sup>6</sup> Ibid

<sup>7</sup> Bureau of Industry and Security, *The Effect of Imports of Transformers and Transformer Components on the National Security*, October 2020, Available online: <https://www.federalregister.gov/documents/2021/11/18/2021-24958/publication-of-a-report-on-the-effect-of-imports-of-transformers-and-transformer-components-on-the>

<sup>8</sup> Department of Energy, *Infrastructure Security and Energy Restoration*, April 2014. Available online: <https://www.energy.gov/sites/prod/files/2014/04/f15/LPTStudyUpdate-040914.pdf>

that have occurred in the past few years have been particularly pronounced in the LPT sector with wait times for orders extending to upwards of a year. LPTs are often built custom for a specific project or facility and a single unit can run up to \$4 million.<sup>9</sup> Costs also have continued to increase year-over-year—nearly tripling since 2020.<sup>10</sup>

DOE should place an emphasis on building out a domestic GOES manufacturing base to support the domestic LPT sector. The adverse impacts on the supply chain caused by the import of electrical steel, transformers, and components into the U.S. market requires a whole-of-government effort to increase the competitiveness, and long-term stability, of domestic manufacturers. It should view investments in GOES as part of a holistic industrial strategy and should pair any research, development, and demonstration (RD&D) program established as a result of this RFI with funding from the various Inflation Reduction Act and BIL programs that can also be used to support GOES and LPT production. Coordinating with other federal funding streams and incentives will be essential to fully supporting a domestic buildout of LPT capacity. In addition, DOE should also partner with the Tennessee Valley Authority (TVA) and the Power Marketing Administrations (PMAs) to utilize their procurement powers to support demand-side drivers for LPTs. The Bonneville Power Administration (BPA), a PMA, operates and maintains 75% of the high voltage transmission lines in its nine-state service territory, providing a substantial market for purchasing domestically manufactured LPTs. DOE should consider additional demand-side support programs, such as those proposed in its recent RFI through the DOE Office of Clean Energy Demonstrations (OCED) for “Demand-side Support for Clean Energy Technologies,” as part of its holistic industrial strategy.

### **Equitable Selection Criteria**

In any LPT program that DOE establishes or administers, the agency should use specific labor, equity, and environmental criteria to determine which companies receive support. We recommend the following factors be given significant weight for project preference.

### **Davis-Bacon and Related Acts**

Any construction funded through this program must adhere to Davis Bacon prevailing wage provisions. Companies benefiting from DOE support should require all contractors and subcontractors to comply with the Davis-Bacon Act and Related Acts (DBRA). Contractors and subcontractors therefore agree that all employees shall be paid the local prevailing wages and receive accompanying benefits as identified under DBRA.

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<sup>9</sup> T&D World, *Transformative Times: Update on the U.S. Transformer Supply Chain*, July 12, 2022. Available online: <https://www.tdworld.com/utility-business/article/21243198/transformative-times-update-on-the-us-transformer-supply-chain>

<sup>10</sup> Politico, *Transformer Shortage Hits Utilities in Storm Season*, August 22, 2022. Available online: <https://subscriber.politicopro.com/article/eenews/2022/08/22/a-crisis-we-see-utility-equipment-delays-hit-storm-season-00052906>

Higher wages on a given project can attract high-road contractors employing skilled professionals who perform high quality work, helping projects meet construction milestones on-time and safely, without increasing total construction costs. Higher wages can have long-term economic benefits to a community and create a long-standing professional workforce for future projects. At the same time, Davis Bacon should be considered the floor of what agencies can do to ensure job quality through this program. Additionally, BGA urges DOE to recommend, or even incentivize living wages for all contractors and subcontractors.

## **Community Assessments and Commitments to Make Lives Better**

DOE's Regional Clean Hydrogen Hubs Funding Opportunity Announcement (FOA) requires significant assessments of the communities that will be affected by the project, and engagement with relevant stakeholders. Applicants must develop a Community Benefit Plan (CBP) to describe their proposed actions for 1) community and labor engagement; 2) investing in the U.S. workforce; 3) advancing diversity, equity, inclusion, and accessibility (DEIA); and 4) contributing to the Justice40 Initiative.

Components of the CBP include:

- A Social Characterization Assessment, where applicants include a brief writeup of the community dynamics, decision making processes, etc.;
- An Initial Stakeholder Analysis Summary, where applicants identify the stakeholders, sectors, labor unions, communities, organizations, etc., involved with and affected by the upcoming project; and
- A Two-Way Engagement Statement where the applicant should include a statement discussing how program implementation incorporates community input for the project and the extent to which the host communities have indicated support.

We encourage federal agencies to require all three assessments in upcoming funding opportunities, including for these transmission-related programs. The three documents work in tandem towards the goal of prioritizing the needs of affected communities while creating a platform for participation in the decision making process of project implementation.

Worker safety and health and the right to organize a union are addressed in the required CBPs. Applicants must "describe the applicant's comprehensive plan for the creation and retention of high-paying quality jobs and development of a skilled workforce." The plan must include a description of the proposed effort to include workers in the design and execution of workplace safety and health plans and how workplace health and safety

and the right to join a union will be ensured. The DOE FOA for Hydrogen Hubs also requires the development of a plan to comprehensively analyze and manage all risks and build and maintain a strong safety culture that encourages open communication about safety and lessons learned. The plan must also address how workers will be protected from harassment and discrimination, how retention rates will be measured, and how worker and workplace concerns will be addressed.

The CBP must also analyze the existing burden on disadvantaged communities using EPA's EJ Screen and DOE's Energy Justice Dashboard. The potential benefits and harms of the proposed project must be determined and those findings must be shared with local community organizations, labor unions, Tribes and other concerned groups. The FOA lays out how those discussions should lead to negotiated Community Workforce Agreements (CWA), Project Labor Agreement (PLAs), collective bargaining agreements and Community Benefit Agreements (CBA) that reflect community input and outline how the potential harms will be avoided and the benefits will be reached.

### **Project Labor Agreements**

A PLA is an instrument to predict and control project timelines and labor costs. A PLA establishes the terms and conditions of employment of workers on specific construction projects, including wages, hours, working conditions, and dispute resolution methods. These agreements can be utilized at the state and local level to ensure high-road labor standards and timely project completion. PLAs promote safe, quality, cost-effective project delivery by providing project owners with unique access to the safest, most productive, best-trained skilled craft labor available in any given market. Large construction projects—not subject to Executive Order 14063 requiring use of Project PLAs for Federal Construction Projects over \$35 million—can still benefit from a PLA.<sup>11</sup>

### **Community Benefit/Workforce Agreements**

CBAs or CWAs can be expansive documents that are negotiated with both unions and community partners. According to the AFL-CIO, CWAs “go well beyond the traditional experience and use of PLAs to explicitly address the legitimate needs and interests of urban communities that have historically been excluded from the benefits of economic development.” CWAs and CBAs frequently include local hire provisions, targeted hire of low-income or disadvantaged workers, and the creation of pre-apprenticeship pathways

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<sup>11</sup> EO 14063 applies to U.S. federal construction projects with a total estimated cost of \$35 million or more procured by the U.S. Army Corp of Engineers, General Services Administration, Naval Facilities Engineering Systems Command, and other federal agencies that directly procure federal construction contracts. “Agencies shall require every contractor or subcontractor engaged in construction on the project to agree, for that project, to negotiate or become a party to a project labor agreement with one or more appropriate labor organizations.” (Section 3). This order does not apply to federally assisted construction contracts procured by state, local, and private stakeholders although other Biden administration policies promote the use of PLAs on certain federally assisted construction projects.



for careers on the project. DOE should consider conditions supporting the use of CBAs/CWAs and community engagement processes—in addition to PLAs and union neutrality—to ensure recipients of federal support are employing workers from local communities, ensuring benefits to the local community, and encouraging broader pathways into good, family-supporting jobs.

### **Targeted Hire**

Targeted Hire provisions—often a key feature of CWAs and CBAs—mandate or incentivize the hiring of workers on a project from certain communities, which may include women, people of color, veterans, the formerly incarcerated, indigenous people, economically disadvantaged communities, communities heavily impacted by climate change, pollution, energy transition, or deindustrialization, and many others. These communities may be prioritized or targeted for funding opportunities through contracting requirements, hiring requirements, or the use or establishment of pre-apprenticeship programs. Ideally, these provisions establish long-lasting pipelines for members of disadvantaged communities, including dislocated workers, to access good jobs and careers in the clean economy.

### **Local Hire**

Local Hire provisions mandate or incentivize the hiring of workers from within the state or local community. Without this provision, work crews from out of state can be brought in, minimizing the job creation benefits for the local community. Local hire provisions may mandate a certain percentage of local workers be used, offer incentives to hire local workers, or simply require that local employment impacts are considered alongside other benefits of projects being evaluated.

### **Registered Apprenticeship, Pre-Apprenticeship, and Labor Management Partnerships**

As DOE looks to strategically invest in the manufacturing of LPTs to ensure we are on a rapid path of decarbonization, so too should it invest in and support the highly trained and technically skilled workforce that is needed to build these component parts.

The main mechanisms for building career pathways are registered apprenticeship, pre-apprenticeship, and union-affiliated training programs. Industrial unions work with their employers on a variety of structures for labor-management training programs (some of which are registered apprenticeship programs) that provide a combination of classroom and on-the-job skills training. These programs provide workers with job training and

career development opportunities to help them gain new skills and advance their careers.

A registered apprenticeship program is a training program that combines on-the-job training and classroom instruction. Apprenticeships are sponsored by employers, industry groups, or labor-management training committees. Registered apprenticeship programs are overseen by the U.S. Department of Labor (DOL) or a DOL-recognized State Apprenticeship Agency.

Pre-apprenticeship programs aim to ensure that workers can qualify for entry into an apprenticeship program and have the skills and support they need to succeed. These programs are generally designed to target certain populations or demographics such as low-income workers, workers of color, women, and other marginalized communities. These kinds of programs offer wrap-around services to support trainees through the programs and help ensure that workers have a clear path towards skills advancement and career development.

DOE should encourage or—where statutory authority permits—require the use of these kinds of programs to promote workforce development and ensure that workers receive appropriate training and education. Requiring the use of these programs can also help to promote equity and fairness in the workplace by providing opportunities for individuals from underrepresented groups to access training and career advancement. Additionally, the use of these programs can help to promote a more skilled and capable workforce, supporting the economic development and prosperity of communities across the country.

It is critical that *quality* pre-apprenticeship programs are used. DOL published model funding opportunity language that includes guidance on how to define a quality pre-apprenticeship and lays out five standards. A quality pre-apprenticeship:

1. Is designed in collaboration with registered apprenticeship program sponsors;
2. Provides meaningful hands-on training that does not displace paid employees;
3. Facilitates entry and/or articulates into a registered apprenticeship program;
4. Creates sustainable partnerships that promote the use of registered apprenticeships as a preferred means for industry to develop a skilled workforce and to create career opportunities and pathways leading to registered apprenticeship enrollment; and
5. Provide access to appropriate supportive services (e.g., wrap-around services such as child-care and transportation).<sup>12</sup>

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<sup>12</sup> U.S. Department of Labor, Job Quality and Equity Notice of Funding Opportunity (NOFO) Draft Language for Federal Agencies, 2023. Available online: <https://www.dol.gov/general/good-jobs/job-quality-and-equity-nofo-language>



The advanced manufacturing required for LPT production requires specially trained engineers and experienced technicians who can assemble these highly sensitive and complex components in the final product. DOE should work with DOL to identify workforce programs to close the skills gap through targeted support. This could also include expanding opportunities for students in the vocational technical schools through competitive grants, loans, and loan guarantees.

## **Empowerment and Representation**

DOE should require that award recipients or any subrecipient affirm a worker's right to organize, which refers to the legal right of workers to form and join unions, engage in collective bargaining, and engage in other concerted activities for the purpose of representation and protection. In addition, DOE should require that award recipients or any subrecipient not use grant funds, whether directly or indirectly, to oppose union organizing. Finally, applicants should be required to describe if and whether the applicant or sub-applicants have existing collective bargaining relationships.

As an example, DOE's Regional Clean Hydrogen Hub FOA states that "applicants must ensure employees' ability to organize, bargain collectively, and participate through labor organizations of their choosing, in decisions that affect them..." The program documents also ask applicants to provide information describing how they will support and protect workers' ability to organize, bargain collectively, and participate—through labor organizations of their choosing—in decisions that affect them, contributes to the effective conduct of business, and facilitates amicable settlements of any potential disputes between employees and employers, providing assurances of project efficiency, continuity, and multiple public benefits.

## **Justice40 and Prioritization of Disadvantaged Communities**

President Biden's Justice40 Initiative calls for 40% of federal investments, in climate and clean energy, to benefit disadvantaged communities, as defined by the Council on Environmental Quality's Climate and Economic Justice Screening Tool. BGA supports increasing this goal to at least 50% of federal funding going towards disadvantaged communities, including deindustrialized and energy transition communities. Federal agencies are responsible for ensuring that Justice40 is implemented within covered programs under their jurisdiction. Generally, any federal program that addresses climate change, clean energy and energy efficiency, clean transit, affordable and sustainable housing, training and workforce development, legacy pollution, and clean water infrastructure is considered a Justice40 covered program.

High-road labor standards can be used to target and create opportunities for disadvantaged communities in accordance with Justice40. This can include local or targeted hire; pre-apprenticeships linked to registered apprenticeships and that offer wrap-around services such as transportation or child care; PLAs, CWAs and CBAs that increase economic opportunities for these communities; omitting or limiting background checks or drug testing; and community engagement with worker recruitment as well as project monitoring and enforcement. Federal agencies can support the use of these high-road labor standards through program guidance, grant applications, and reporting requirements.

### **Build America, Buy America (BABA) and Domestic Content**

The Build America Buy America Act (BABA), included in the BIL, was enacted to improve our domestic supply chains and establish robust, comprehensive domestic content preferences across all federal aid infrastructure spending. BABA requires federal agencies to prioritize improving job opportunities by focusing on high-road labor standards in the implementation of infrastructure projects. Implementing policies, such as BABA, to increase domestic manufacturing can help to support and create quality manufacturing jobs.

As required by law, DOE should ensure use of domestic content and Buy America standards in projects receiving demand-side support. As the BABA provisions in the BIL come into effect and strengthen the Buy America requirements associated with federal investments, the positive market and employment effects generated by a demand-side support program will be further magnified. Supply chain reporting and disclosure should also be encouraged while incentivizing assembler/supplier commitments and accountability. Further, a waiver process for unavailability should be limited as the vast majority of component parts can be sourced domestically (e.g., steel and aluminum for the manufacturing of clean technologies). It is in the public interest to avoid waivers for these domestic content requirements, given the environmental and economic benefits of sourcing from domestic manufacturers.

### **Conclusion**

LPTs are critical components to decarbonize our grid, increase national security and resilience, and expand middle class manufacturing jobs. To develop a strong industrial base capable of manufacturing for a clean energy grid, we need to go beyond longstanding RD&D and manufacturing programs. We should aim to manufacture at the rate necessary to ensure domestic supply meets growing demand, while expanding access to good union jobs for hard-hit workers and tangible economic and environmental benefits for disadvantaged communities. DOE has an opportunity to address systemic inequities, expand the grid, and secure our clean energy future.

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