Written Comments for AI Insight Forum: Workforce
Austin Keyser, Assistant to the International President for Government Affairs
International Brotherhood of Electrical Workers (IBEW)
October 30, 2023

The International Brotherhood of Electrical Workers (IBEW) appreciates the ability to provide written comments to Majority Leader Chuck Schumer and fellow AI Insight Forum participants on the impact of Artificial Intelligence on the workforce, especially the work done by IBEW members. Over 820,000 active and retired IBEW members currently work in all sectors of the U.S. and Canadian economies, including construction, utility and other power generation sectors, railroad, shipbuilding, manufacturing, and broadcast and telecommunications, among other areas. Thanks to the passage of landmark laws, the Inflation Reduction Act, Chips and Science Act, and Infrastructure Investment and Jobs Act, the IBEW is poised to grow by hundreds of thousands of members in the next decade. As Artificial Intelligence's (AI) growth and development in the workplace coincides with the increased demand for electricians stemming from the passage of these laws, the IBEW is actively considering how to harness and manage this new technology. We are eager to consider the comments here and in other forums to help shape our policy, business, and membership aims.

Broad Opportunities and Challenges in AI

Electricians and other electrical workers will not be immune to the AI revolution. AI is already automating and augmenting a broad array of jobs and job tasks. The IBEW recognizes AI's potential for benefit and disruption in the electrical construction industry and beyond. Governmental and private investments in artificial intelligence are already beginning. According to the Center for American Progress, there are currently over $9 million of announced projects involving AI, backed by federal investment from the Infrastructure Investment and Jobs Act.[1] Awards are being made in a variety of sectors and are provided by various federal agencies, including the Department of Transportation and the National Oceanic and Atmospheric Administration.

Electrical Construction

AI has and will change the jobs of electricians in the construction industry. Routine but essential tasks of an electrician, such as conduit bending, for example, may be fully automated in the coming decades. At the same time, AI also requires the large-scale use of data and electricity to operate. Smart homes and buildings and the use of digital twins – an emerging technology and methodology that involves creating a digital replica of physical objects, such as buildings and

[1] Biden Administration Investment Tracker (2023) Center for American Progress. Available at: https://www.americanprogress.org/article/biden-administration-investment-tracker/ (Accessed: October 30, 2023).

infrastructure, to predict outcomes – are becoming more widespread. IBEW electricians are already involved in the construction and maintenance of data centers, smart systems installation, building energy use optimization, and more.

The safety risks inherent in construction work cannot be overstated. Electrical construction, in particular, is extremely dangerous work that is highly technical, complex, and replete with hazards that cause injuries and fatalities when workers are not properly trained and work is not executed properly.[2] In addition, faulty electrical installations often prove to be not only hazardous but tremendously expensive, leading to debilitating cost overruns for project owners. The nature of this work thus underscores the need for thoughtful policy approaches to the use of AI in the construction industry to ensure that workers are protected, and quality does not suffer.

As generative AI, predictive AI, automation, and machine learning transform everything from how the electrical industry manages contracts to electrical failures to on-the-job safety inspections, the IBEW and our contractor-partners in the National Electrical Contractors Association (NECA) will adapt our gold standard registered apprenticeship programs to address these changes, just as we have adapted to technological changes in the construction industry for over a hundred years.

Utility

The IBEW expects an explosion of work in electric power, transmission, and distribution projects. According to Industrial Info Resources, a database that provides end-users with tools to identify, qualify, track, analyze, and predict the potential spending within a given market, as of October 30, 2023, there are 1,778 Projects worth $113.40 Billion (USD) planned in the United States to upgrade, modernize, and expand our grid.[3] With this in mind, artificial intelligence will greatly impact the industry in distinct ways.

For instance, because artificial intelligence has the potential to manage the large and accelerating influx of distributed energy resources like solar and battery storage, a whole new class of residents and businesses are generating electricity through a substantial increase in the bi-directional flow of energy. Given this, there are significant competitive pressures on utilities in North America — overwhelmingly a regulated environment — from other stakeholders, particularly in the tech sector, that are very interested in removing regulatory structures and gaining access to consumers and the revenue stream utilities have.

---

[2] Babak Memarian, et. al, *High-Risk Electrical Tasks and Contributing Work Factors*, Professional Safety Journal (2022), https://www.assp.org/docs/default-source/psj-articles/f1mem_0822.pdf?sfvrsn=d8b99447_0 (internal citations omitted).

[3] PECWeb Project Search Results (no date) Industrialinfo.com. Available at: https://www.industrialinfo.com/dash/project_results.jsp (Accessed: October 30, 2023).

In addition, the utility industry and its premier research organization, the Electric Power Research Institute (EPRI), have been investigating the use of drones and artificial intelligence (AI) to improve the inspection of transmission and distribution assets. Unmanned drones equipped with cameras can collect massive troves of images of conductors, transformers and other equipment that can then be analyzed quickly and thoroughly by artificial intelligence. There is broad agreement in the industry that this approach has the potential to identify equipment at risk of failure in a manner much faster and safer than the current method that relies on manual inspections.

Artificial intelligence has the potential to provide significant benefits to the utility industry. Through the use of AI, utilities can improve customer engagement by utilizing AI tools that help them better understand and customize energy use on the individual appliance level. This level of customization could improve customer satisfaction, lower electricity usage, and save consumers money. Other areas for potential usage of AI in the utility sector include improved regulatory compliance, better transmission and distribution planning, and new electrification opportunities that can bolster revenues. On the final point, EPRI projects efficiency gains will lead overall electric loads to decline in the absence of what it terms "efficient electrification" initiatives. EPRI calculates that pursuing electrification will lead to cumulative electricity usage growth of between 24 percent and 52 percent.[4] With over 200,000 IBEW members working for utilities, growth in the industry would result in greater benefits for IBEW members, their families, and their communities.

Manufacturing

Electrical manufacturing is undergoing massive growth in the United States. After losing hundreds of thousands of manufacturing jobs to offshoring, the IBEW is prepared to capture lost market share. Though AI will continue to automate many jobs and processes in manufacturing, new categories of jobs will be created in the manufacture of semiconductors, robotics, and other components used in the creation of AI. In addition, as mentioned above, AI is transforming sectors within the IBEW's jurisdiction, which will create more jobs in the manufacture of solar panels, wind turbines, and lithium-ion and other batteries used in grid storage.

Railroad

Artificial Intelligence can help detect potential hazards and alert operators of any abnormalities. This is particularly important since the advent of Precision Scheduled Railroading (PSR), where trains run miles longer due to cost-cutting measures implemented by industry. Predictive maintenance is a valuable supplement to traditional maintenance methods but are not a replacement for them. It schedules maintenance tasks as needed, reducing unexpected failures and enhancing routine preventive maintenance scheduling without eliminating the need for

[4] Utility Dive, "AI in the Utility Industry," 2023. Available at: https://www.utilitydive.com/news/ai-in-the-utility-industry/543876/ (Accessed: October 27, 2023).

traditional run-to-failure or preventive maintenance programs. This tool combined with a highly skilled and trained workforce has the potential to highlight shortcomings in current maintenance and encourages more stringent safety measures.[5]

Policy Recommendations

As the economy evolves and markets form and disappear, the IBEW, and all unions, must adapt. The impact of unions on the U.S. economy is well documented. The Treasury Department recently released a report highlighting how unions and collective bargaining help expand the middle class, increase wages, contribute to the economy's growth and resilience, and promote societal benefits[6]. At the same time that favorable sentiment towards unions is growing in the U.S., AI threatens to undercut worker power through the elimination of entire classes of jobs, while AI's ability to monitor workers makes workplaces less democratic.

In this way, from construction to utility to manufacturing to shipbuilding and beyond, it is critical that workers' rights and human rights are centered as new laws and policies are developed to safeguard against the risks posed by AI. New laws should especially consider how to safeguard workers in *relatively* lower-wage careers, such as manufacturing and freight rail. Strengthening collective bargaining power for U.S. workers through statute, for example, can help ensure that unions like the IBEW can negotiate pro-worker contracts with employers that, for instance, prevent intrusive monitoring and automated decision-making, and provide job retraining and reskilling. In addition, the adoption of new AI technologies must be weighed against potential cybersecurity and data privacy risks unique to every industry.

Finally, AI will create new classes of jobs that require new and existing skills. Federal and state governments, labor unions, and private industry must be equally invested in the development of these skills among local workforces as a first resort. As mentioned, the IBEW has developed the gold standard in registered apprenticeships; this knowledge must be leveraged by policymakers and industry as we train the workforce of the future.

Conclusion

The IBEW represents highly skilled electricians and other electrical workers in all sectors of the economy who are ready to greet the AI revolution and the changes it will bring to the workforce. Labor unions like the IBEW are critical to ensure that AI provides its promised benefits equitably across the workforce and, indeed, the American people as a whole. This means allowing unions to flourish in the U.S. by strengthening labor laws, protecting vulnerable workers whose jobs could be replaced through automation, enacting cybersecurity and data

[5] ScienceDirect, "Implementation of Artificial intelligence for maintenance operation in the rail industry," March 2023. Available at: www.sciencedirect.com

[6] U.S. Department of the Treasury, "Labor Unions and the Middle Class," August 2023. Available at: https://home.treasury.gov/system/files/136/Labor-Unions-And-The-Middle-Class.pdf (Accessed: October 30, 2023).

privacy measures, and investing in union workforce training programs to bolster the AI workforce in all industries.