PROJECT LABOR AGREEMENT FACTS

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THIS IS A PROJECT LABOR AGREEMENT TOOLKIT

This toolkit provides evidence-based research messaging, one-page fact sheets, and resources such as example op-eds and infographics. This toolkit can deliver results for those looking to implement or expand Project Labor Agreements.

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MESSAGING

This section provides messaging and evidence-based fact sheets on Project Labor Agreements. It is designed to help you communicate how PLAs deliver value for contractors, workers, taxpayers, and communities.

Core Messages

➔ **Project Labor Agreements Promote Stability and Efficiency on Infrastructure Projects**

- The purpose of a PLA is to promote predictability, coordination, and efficiency on infrastructure projects.
- PLAs include clauses that ban strikes and lockouts to ensure an uninterrupted supply of qualified labor.
- PLAs are valuable construction management tools for planning projects, controlling costs, and ensuring workforce stability.
- PLAs have a long history in *both* the public and the private sector—including at Apple, Wal-Mart, Disney, Intel, Ørsted North America, Dominion Energy, Micron Technology, and in the National Football League.

➔ **Project Labor Agreements Stabilize Public Construction Costs and Promote Competitive Bidding**

- Peer-reviewed studies find that PLAs do not affect total construction costs.
- Labor costs are a low and historically declining share of total construction costs—approximately 23%.
- PLAs do not alter the level of bid competition—an important determinant of project costs.
- Both union and nonunion firms can bid on PLA projects.
- By using skilled tradespeople who deliver superior craftsmanship, safety, and productivity outcomes to the jobsite, PLAs are an insurance policy that help project owners and developers control construction costs.

➔ **Project Labor Agreements Ensure Projects Are Completed On Time and Within Budget**

- A PLA is an insurance policy for taxpayers, guaranteeing that infrastructure is built by competent workers trained to deliver the highest standards of safety and craftsmanship.
- Projects built with PLAs have been found to be completed up to 19% faster than those without PLAs.
- Studies show that projects covered by PLAs are completed on time and within budget.

➔ **Project Labor Agreements Deliver Job Quality for Workers and Strengthen Public Budgets**

- PLAs establish market-competitive wages and safe working conditions that attract skilled workers.
- Workers covered by PLAs earn higher wages and are more likely to have healthcare coverage.
- PLAs result in fewer construction workers living in poverty.
- PLAs strengthen public budgets because they mean workers are contributing more in income taxes and sales taxes and are less likely to rely on government assistance programs like food stamps and Medicaid.

➔ **Project Labor Agreements Boost Training, Improve Safety, and Combat Labor Shortages**

- PLAs boost investment in apprenticeship training for the next generation of skilled construction workers.
- PLAs invest in joint labor-management apprenticeship programs, which train 7-in-10 construction apprentices in America.
- Workers trained in joint labor-management apprenticeship programs have 31% lower injury rates and union worksites have 34% fewer OSHA violations.
- PLAs make contractors less likely to experience project completion delays due to worker shortages.
- Worker turnover is 33% less likely to occur when union labor is employed on infrastructure projects.

➔ **Project Labor Agreements Expand Local Hire and Opportunities to Workers from Disadvantaged Backgrounds**

- PLAs can increase local hire and expand opportunities to workers from underrepresented communities at a time when the industry is facing a historic labor shortage and contractors need new workers.
- PLAs promote the hiring of veterans and facilitate the hiring of registered apprentices.
- Union employers are twice as likely to offer diversity and inclusion training programs and twice as likely to have policies in place to recruit people of color and members of the LGBTQ+ community.

Project labor agreements are risk minimization tools that can enable America to follow through on infrastructure promises. A strong America is built with project labor agreements.

PLAs Promote Predictability, Coordination, and Efficiency on Infrastructure Projects

➔ **Key Messages:**

1. The purpose of a PLA is to promote predictability, better coordination of workflow, and improved efficiency on infrastructure projects.
2. PLAs are a valuable construction management tool for project planning, controlling costs, and promoting workforce stability.
3. PLAs have long been used to manage complex projects in *both* the public and the private sector.

The Facts:

Project labor agreements (PLAs) are pre-hire agreements covering all crafts on large and complex construction projects that establish terms and conditions of employment. The mutual agreements are between the entity with control over contracting for the project and a coalition of unions for the duration of the project.

The main purpose of a PLA is to promote predictability, coordination, and efficiency on large infrastructure projects. Construction is a highly skilled, labor-intensive industry. The success of any construction project requires significant coordination among various contractors and a dependable, qualified workforce that is trained in specific types of craft work. A PLA is a management tool that institutes uniform work rules and harmonizes shift work to improve productivity, provides access to pools of skilled workers to reduce the chances of labor shortages, and includes provisions for banning strikes and lockouts to promote on-time completion. PLAs can also produce other positive outcomes. For example, PLAs include language to hire apprentices and individuals from underrepresented backgrounds (Ormiston & Duncan, 2022).

Project labor agreements have been applied to public projects since at least the 1930s (Mayer, 2010). The Tennessee Valley Authority, the nation's largest public power company, has used a master PLA since 1991 and entered into a 10-year extension through 2031 (Hill International, 2011; TVA, 2020). PLAs have been used on school construction projects, road construction projects, affordable housing projects, and building projects (Ormiston & Duncan, 2022). In Illinois, Governor JB Pritzker signed more than 800 PLAs during his first term between 2019 and 2022, including nearly 200 Illinois Department of Transportation highway projects and over 600 Capital Development Board building projects (Donald, 2022; EO 19-02, 2019). In 2022, President Joe Biden issued an Executive Order requiring that PLAs be used on federal construction projects worth $35 million or more, building upon an Executive Order encouraging PLAs on federal projects worth $25 million or more under President Barack Obama (Biden White House, 2022; Obama White House, 2009). Federal agencies—including the U.S. Departments of Transportation, Energy, and Commerce—have released Notices of Funding Opportunities (NOFOs) that encourage PLA utilization on federally-assisted projects (e.g., DOT, 2022).

Project labor agreements also have a long history in the private sector (Hill International, 2011). Corporations like Apple, Intel, Honda, General Motors, British Petroleum, Proctor & Gamble, Wal-Mart, Disney, Ørsted North America, Inc., Dominion Energy, and Micron Technology regularly employ PLAs on large, complex construction projects (McFarland, 2022; Moran, 2011; Mayer, 2010). Power plants and pipelines often utilize PLAs (BLE, 2005). Gaming companies like Bally's and Hard Rock Casino have signed PLAs to build casinos (Briggs, 2022; Clark & Carpello, 2021). And in the National Football League (NFL), 12 of out 18 stadiums built or renovated between 1998 and 2016 were constructed with PLAs (67%) (BCTD, 2012). According to information collected by the North America's Building Trades Unions, there were PLAs on at least 428 public and private projects valued at $184 billion in the United States between January 2022 and June 2023 (NABTU, 2023).

Project labor agreements are de-risking mechanisms that are widely used across the United States. PLAs are a "valuable construction management tool" for project planning and workforce stability on both public and private projects (Kotler, 2011). At the same time, PLAs ensure market-competitive wages and benefits, a skilled workforce, uninterrupted labor supply, safety standards, robust workforce development commitments that create career pathways, and timely completion of critical infrastructure projects on budget.

PLAs Promote Predictability, Coordination, and Efficiency on Infrastructure Projects

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PLAs Ensure Projects Are Completed On Time and Within Budget

➔ **Key Messages:**

1. PLAs are "job-site constitutions" that boost efficiency and save money for taxpayers.
2. Projects built with PLAs are completed up to 19% faster than those without PLAs.
3. Projects covered by PLAs are more likely to be completed on time and within budget.

The Facts:

Project labor agreements (PLAs) ensure that large, complex infrastructure projects are completed on time and within budget. A PLA "operates as a 'job-site constitution,' establishing safe working conditions and rules, project execution and accountability on the job, and protocols for resolving labor disputes without resorting to strikes and lockouts" (Waheed & Herrera, 2014). PLAs typically include provisions for banning strikes and lockouts, providing access to skilled workers, and standardizing work shifts to boost efficiency. Interviews of industry representatives who have experience with PLAs reveal that they believe "the greatest benefit of PLAs [i]s in assuring timely completion of a project" (Belman, Bodah, & Philips, 2007).

A cost effectiveness study by Hill International analyzed a PLA used by the New York City School Construction Authority from 2005 to 2009. The report found that the "total of major quantifiable cost savings resulting from utilization of a PLA in construction amount[ed] to $221 million" over five years (Hill International, 2011). Notably, although the collective bargaining agreements of all the unions involved were renegotiated and two unions even went on strike in that five-year period, the PLA ensured that construction on the schools continued uninterrupted. Having the PLA in place was an insurance policy for taxpayers, lowering costs and ensuring that schools opened on time for children and parents.

Studies have found that PLAs keep projects within budget. A case study of 317 building projects completed by the Illinois Capital Development Board under PLAs from 2011 through 2013 found that the average winning low bid was 5% below the engineer's estimate, indicating that PLA projects came in on budget for taxpayers (Manzo & Bruno, 2015). Another case study of seven buildings constructed between 2008 and 2015 at the College of Marin in California compared three projects completed with PLAs with four projects that were not. The PLA-covered projects were awarded lower than the engineer's estimates relative to the non-PLA projects (Waitzman & Philips, 2017).

Public works projects built with PLAs are also completed faster than those built without PLAs. A recent study of 292 infrastructure projects—including 59 covered by PLAs—constructed in Sacramento County, California between 2018 and 2023 used publicly available certified payroll records to evaluate the number of calendar days each project took to finish. Researchers found that, after accounting for project size, whether it occurred in an urban area, the awarding body, and other important factors, PLA-covered projects come in between 15% and 19% faster than non-PLA projects at statistically significant levels (Petrucci, Dunn, & Hinkel, 2023).

In the private sector, three recently built NFL stadiums offer additional examples of PLAs providing on-time delivery. MetLife Stadium in New Jersey was built with a PLA and opened four months ahead of schedule (BCTD, 2012). US Bank Stadium in Minnesota was constructed with a PLA and was completed six weeks ahead of schedule (MMPS, 2013; US Bank Stadium, 2023). Allegiant Stadium in Las Vegas was built with a community benefits agreement that included a PLA, and the facility finished on time and on budget (Akers, 2020).

Ultimately, real-world data show that project labor agreements are an essential tool for general contractors, developers, and governments to follow through on infrastructure improvements that have been promised to customers, investors, and taxpayers.

PLAs Ensure Projects Are Completed On Time and Within Budget

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PLAs Stabilize Public Construction Costs and Promote Competitive Bidding

➔ **Key Messages:**

1. Peer-reviewed academic studies find that PLAs do not affect total construction costs.
2. PLAs do not alter the level of bid competition—an important determinant of project costs.
3. By using skilled tradespeople and promoting competitive bidding, PLAs control construction costs.

The Facts:

Peer-reviewed studies demonstrate that PLAs do not negatively affect construction costs. One peer-reviewed study focused on 99 community college projects in California between 2007 and 2016. After accounting for project size and complexity, project location, the business cycle, and the season when the project was awarded, PLAs had no effect on construction costs (Philips & Waitzman, 2021). Another compared 70 school construction projects built in Massachusetts from 1996 through 2002. After collecting dozens of characteristics on each project and accounting for project size and complexity, researchers found no evidence that PLAs affected total costs (Belman et al., 2010). A third explored school construction projects in Ohio, many of which included PLAs and others which incorporated similar high-road construction market standards such as prevailing wages and participation in apprenticeship training programs. Researchers evaluated 63 schools built with responsible contractor policies against 256 schools without such policies between 1997 and 2008 and found that they had "no discernible statistical impact on construction bid costs" (Waddoups & May, 2014).

The only peer-reviewed study which suggested that PLAs increase costs analyzed 126 school construction projects in Massachusetts by authors affiliated with the Beacon Hill Institute, a think tank that is a "Partner" in the anti-union State Policy Network and American Legislative Exchange Council (Bachman & Haughton, 2007; SPN, 2023). However, the results of this study have been called into question by numerous academic researchers (Ormiston & Duncan, 2022; Kotler, 2011; Belman, Bodah, & Philips, 2007).

PLAs stabilize project costs because they ensure competitive bids from contractors. The analysis of California community college projects is the only peer-reviewed study to investigate bid competition. Over a 10-year period, there were 263 bids on these 99 projects. After accounting for project size, project location, the business cycle, and the season when the project was awarded, PLAs had no negative effect on the number of bidders. Instead, the projects with PLAs had slightly *more* bidders than those without (Philips & Waitzman, 2021). Another non-peer-reviewed study compared two school districts in San Jose, California. One district chose to build with PLAs while the other did not. The researchers accessed 164 total projects, including 108 built prior to the PLA going into effect and 56 while it was in place, with 21 covered by the PLA. After accounting for other important factors, the PLA had "no statistically significant effect on the number of bidders" (Belman, Bodah, & Philips, 2007). A report on projects conducted in Seattle between 2015 and 2021 found that the average number of prime contractors bidding on projects covered by PLAs was the same (3.6 bids) as comparable projects conducted without PLAs (3.6 bids) (Seattle FAS, 2022). Finally, the New York State Energy Research and Development Authority recently required prospective lessees for its first wind farm to enter into good faith negotiations for a PLA, garnering 18 proposals from four developers, which was "the most competitive market response to date among all U.S. state offshore wind solicitations" (NYSERDA, 2019).

Finally, a study of 336 bids submitted on 95 aviation and seaport construction projects by the Port of Seattle between 2016 and 2023 found an average of 4.3 bids on the 23 PLA-covered projects and 3.7 bids on the 72 non-PLA projects. After accounting for project size and complexity, the number of bids was not statistically different on PLA-covered projects. PLAs also had no effect on total construction costs (Manzo & Bruno, 2024).

By utilizing skilled workers, guaranteeing consistent work without strikes or lockouts, ensuring safe worksites, and promoting competitive bidding, PLAs improve efficiency and help control public construction costs.

PLAs Stabilize Public Construction Costs and Promote Competitive Bidding

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PLAs Expand Local Hire and Opportunities to Workers from Disadvantaged Backgrounds

➔ **Key Messages:**

1. PLAs can increase local hiring and expand career pathways to underrepresented communities at a time when the industry is facing a historic labor shortage and contractors need new workers.
2. PLAs promote the hiring of veterans and facilitate the hiring of registered apprentices.
3. PLA-covered projects are twice as likely to meet women apprenticeship goals.

The Facts:

Project labor agreements (PLAs) improve access to skilled labor and can recognize the importance of local hire and industry recruitment goals. PLAs grow the number of registered apprentices, and many include language hiring local workers and workers from disadvantaged backgrounds (Ormiston & Duncan, 2022). In fact, from 1995 to 2010, an estimated 75% of PLAs promoted the hiring of veterans, 56% required hiring women and people of color, and 38% set local hiring goals (Figueroa, Grabelsky, & Lamare, 2011).

A recent evaluation of 55 Port of Seattle projects that had apprenticeship goals from 2020 through 2022, including 20 PLA projects and 35 non-PLA projects, found that PLA projects boost apprenticeship training and expand construction career opportunities to historically disadvantaged workers (Manzo & Bruno, 2024). PLA projects had 5% more hours worked by apprentices, were 23% more likely to achieve apprenticeship utilization goals, and were *twice* as likely to meet women apprentice goals (55%) as non-PLA projects (29%). People of color also accounted for a larger share of apprentice hours on PLA projects (37%) than non-PLA projects (35%)

A case study of 317 state building projects completed by the Illinois Capital Development Board of PLAs from 2011 through 2013 found that they can improve industry diversity. While Minority and Women Business Enterprise (MWBE) firms accounted for 12% of pre-qualified firms eligible to bid, they were awarded 13% of the total construction value on projects covered by PLAs. This indicates that PLAs may have supported female and nonwhite business owners in the effort to diversify the construction industry (Manzo & Bruno, 2015).

Two recently built NFL stadium offer success stories in the private sector. US Bank Stadium in Minnesota was constructed with a PLA and equity plan, and was completed six weeks ahead of schedule (MMPS, 2013; US Bank Stadium, 2023). The PLA and equity plan resulted in women and people of color holding 45% of the 7,500 jobs on the project, exceeding original targets by 7 percentage points (Glass & Walter, 2023). Allegiant Stadium in Las Vegas was built with a community benefits agreement that included a PLA. The facility finished on time and on budget while meeting equity and local hire goals—with 63% of work hours performed by women and people of color, Nevada residents accounting for 80% of the workforce, and Nevada-based contractors doing 70% of the work (Slowey & Tyler March, 2018; Akers, 2020).

The ability of PLAs to expand opportunities for people from historically underrepresented communities is driven by the partnership among unions and their signatory contractors. According to the U.S. Department of Energy, union employers (46%) are more than twice as likely as nonunion employers (22%) to offer diversity and inclusion training programs, and twice as likely to have policies that recruit people of color and members of the LGBTQ+ community (USEER, 2023). Their recruitment efforts, pre-apprenticeship programs, and registered apprenticeship programs are key reasons why union contractors are 28 percentage points less likely to report that finding workers to fill positions in the skilled trades has been "very difficult" (USEER, 2023).

In addition to controlling costs and mitigating construction risks, project labor agreements have proven effective at achieving positive outcomes for local communities. PLAs support a robust, reliable, and responsive system for developing skilled workers, expanding opportunities for people from historically underrepresented communities and improving local hiring efforts at a time when the industry is facing a labor shortage and contractors need workers to build and repair trillions of dollars in infrastructure improvements.

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PLAs Increase Training Investments and Improve Worksite Safety

➔ **Key Messages:**

1. PLAs invest in training the next generation of skilled construction workers.
2. Union-affiliated apprenticeship programs account for 7-in-10 construction apprentices across the United States, including 8-in-10 women, Black, and Hispanic apprentices.
3. Research has linked both apprenticeship programs and partnerships with skilled trade unions with better safety outcomes on jobsites.

The Facts:

Project labor agreements (PLAs) increase investments in registered apprenticeship programs and reduce on-the-job accidents and injuries. PLA projects utilize registered apprentices that are governed by apprentice-to-journeyworker ratios designed to promote safety on the job site and quality training. PLAs also produce these outcomes by promoting partnerships with the union—or signatory—segment of the construction industry.

Apprenticeship training is particularly important in construction. Joint labor-management apprenticeship programs sponsored by unions and signatory employers are cooperatively administered with standards, graduated wage scales, and apprentice-to-journeyworker ratios. Funding for training in joint programs is institutionalized and financed by "cents per hour" contributions negotiated with signatory contractors. By contrast, employer-only programs are sponsored by an employer or a trade association who unilaterally determines program content and monitors progress. These programs rely on voluntary contributions from contractors or trade associations, who may have incentives to forgo long-term workforce development investments in order to win short-term project bids.

Through registered apprenticeship programs, the construction industry operates "the largest privately-financed system of higher education in the country" (Philips, 2014). Because of the different funding models, nearly all of this investment comes from joint labor-management programs. Joint programs account for 68% to 75% of all construction apprentices across the United States, including 85% of women apprentices, 79% of Black apprentices, and 79% of Hispanic apprentices (Bilginsoy & Ormiston, 2024; Bilginsoy et al., 2022). Joint programs train 97% of all construction apprentices in Illinois, 92% in California, 75% in Michigan, and 63% in Oregon (Manzo & Bruno, 2020; Calamuci, 2020; Manzo, Wilson, & Bruno, 2023; Stepick & Manzo, 2021). Except for electrical and mechanical trades, joint programs enroll 86% to 96% of registered apprentices in each craft (Belman, 2022). Research shows that joint programs require 30% more hours of training than the typical bachelor's degree at public universities (Manzo & Bruno, 2020; Stepick & Manzo, 2021). Despite their rigorous training standards, joint programs have 11% higher completion rates than employer-only programs, with higher completion rates for women and people of color (Belman, 2022; Bilginsoy et al., 2022; Petrucci, 2021).

Registered apprenticeship programs improve safety outcomes. Researchers from the Washington State Department of Labor & Industries linked apprenticeship data with plumber certification information and compared workers' compensation claims between 2000 and 2018. The researchers found that journey-level plumbers who graduated from apprenticeship programs had 31% lower workers' compensation claim rates than plumbers with no apprenticeship training (Wuellner & Bonauto, 2022).

Unions deliver superior safety outcomes. An analysis of more than 37,000 Occupational Safety and Health Administration (OSHA) inspections in the construction industry in 2019 found that union worksites have 34% fewer violations per inspection than the nonunion alternative (Manzo et al., 2021). Another study found that a 1% increase in unionization is associated with a 3% decline in the rate of occupational fatalities (Zoorob, 2018).

By recognizing the importance of partnering with skilled trade unions, PLAs ensure that contractors invest in apprenticeship programs and that they attract, train, and retain competent workers who uphold the highest standards of safety and craftsmanship. As a result, PLAs enable projects to be completed on-time and safely.

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By Partnering with Unions, PLAs Reduce Worker Turnover and Combat Labor Shortages

➔ **Key Messages:**

1. PLAs often promote the use of union construction labor, which is 4% more cost-effective than the nonunion alternative.
2. Union contractors are 21% less likely to experience delays in project completion times due to shortages of workers.
3. Research finds that when union labor is employed, the risk of worker turnover drops by 33% and projects are 40% less likely to experience a shortage of skilled workers.

The Facts:

Union contractors invest in job quality and worker training, and these investments pay dividends. Survey data from the Associated General Contractors of America (AGC), including responses from nearly 1,800 union contractors and almost 3,900 nonunion contractors, reveal that skilled labor shortages are much less severe in the union segment of the industry. Union contractors are 21 percentage points less likely to experience delays in project completion times due to shortages of workers, 27 percentage points less likely to report that their local pipeline for supplying well-trained craft workers is "poor," and 13 percentage points less likely to lose their workers to other industries (Manzo, Petrucci, & Bruno, 2022).

Similarly, in a survey of more than 34,000 energy sector employers, the U.S. Department of Energy found that union employers have less trouble filling open positions. The union difference "was especially pronounced in the construction industry," where union contractors are 28 percentage points less likely to report that it is "very difficult" to find workers (USEER, 2023).

Economic research also shows that union workers improve workforce productivity. Early research measured value added per employee and found that union construction workers are 17% to 30% more productive, including on office buildings and school projects (Allen, 1984; Allen, 1986).

Studies find that, because of increases in workforce productivity, union contractors are cost-competitive on public construction projects. Two studies conducted in 2013 examined more than 8,000 bids on nearly 1,500 school construction projects in Ohio. The studies compared bids of construction companies that contractually pay union-scale wages to those submitted by nonunion contractors and found no difference in average bid costs per square foot (Atalah, 2013a; Atalah, 2013b). A 2020 study of nearly 300 bids on 80 school construction projects in Nevada found that union contractors were no more expensive than nonunion contractors (Duncan & Waddoups, 2020). A 2012 study of just under 600 bids on municipal construction projects in five California cities also did not find a difference in union and nonunion bid prices (Kim, Kuo-Liang, & Philips, 2012). Furthermore, a 2021 analysis of nearly 700 package bids on school construction projects in Minnesota found no cost difference between union contractors and nonunion contractors (Manzo et al., 2021).

Finally, a recent study analyzed 1,550 industrial and commercial building projects built between 2000 and 2022 and found that union construction labor is 4% more cost-effective. The researchers found that union workers are 14% more productive than nonunion workers, worker turnover is 33% less likely to occur when union labor is employed, and projects are 40% less likely to experience a shortage of skilled workers when union labor is sourced. The authors conclude that "union labor creates significant value for owners through lower costs and more predictable schedules," reducing overall project costs by 4% (McFadden, Santosh, & Shetty, 2022).

By sourcing labor through the union referral system, project labor agreements ensure that contractors have access to well-trained craft workers and that projects are not delayed due to labor shortages or high turnover. PLAs deliver higher levels of workforce productivity and improve efficiency on infrastructure projects.

By Partnering with Unions, PLAs Reduce Worker Turnover and Combat Labor Shortages

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PLAs Deliver Middle Class Careers and Strengthen Public Budgets

➔ **Key Messages:**

1. Opponents of PLAs are at odds with unions, who enjoy bipartisan support from ⅔rds of Americans.
2. Union construction workers earn higher wages, are more likely to have healthcare coverage, and are less likely to fall below the official poverty line.
3. Union construction workers contribute more in taxes and are less likely to rely on government assistance programs like food stamps and Medicaid, saving money for taxpayers.

The Facts:

Project labor agreements (PLAs) emphasize the importance of job quality and workforce stability. Anyone who claims that PLAs raise public construction costs is implying that wages, benefits, and standards that have been *privately negotiated* between unions and their employers in collective bargaining agreements negatively impact taxpayers. They fail to acknowledge the value of collective bargaining in the construction industry, for communities, and—perhaps most importantly—for taxpayers.

Public approval of unions remains at its highest level in six decades. Fully 67% of Americans and 71% of registered voters approve of labor unions, including 9-in-10 Democrats, 7-in-10 independents, and 5-in-10 Republicans (Saad, 2023; GBAO, 2023; McCarthy, 2022). More than 6-in-10 Americans say that unions have a positive effect on the U.S. economy, and 8-in-10 registered voters says that unions positively impact workplace safety, worker pay and hours, and the ability to afford and access healthcare (GBAO, 2023; Saad, 2023).

Unions have long been associated with higher levels of job quality (U.S. Treasury, 2023; Bivens et al., 2017; Long, 2013; Walters & Mishel, 2003). Union households have earned an average of 10% to 20% more than nonunion households every year since the 1930s (U.S. Treasury, 2023; Farber et al., 2021; Schmitt, 2008). Union membership has also been found to boost a worker's lifetime earnings by $1.3 million over the course of a career (Parolin & VanHeuvelen, 2023). In the U.S. construction industry, median weekly wages were $1,424 for union construction workers and $1,007 for nonunion construction workers in 2023, a 41% difference (BLS, 2024). The U.S. Department of Labor also reports that 95% of union workers have access to healthcare coverage, 95% have access to retirement plans, and 92% have access to paid sick leave. By contrast, just 71% of nonunion workers have healthcare access, 70% have retirement plan access, and 78% have paid leave (BLS, 2023). By raising worker incomes, unions reduce taxpayer costs for government assistance programs like Supplemental Nutrition Assistance Program (SNAP) food stamps and Medicaid (Sojourner & Pacas, 2018).

Unions improve public budgets for taxpayers. Union construction workers are 14% more productive than their nonunion counterparts and projects completed entirely by union workers are 4% cheaper than those built by nonunion workers (McFadden, Santosh, & Shetty, 2022). Additionally, because union construction workers earn higher incomes, they contribute more in taxes and are 6 percentage points less likely to rely on government assistance programs (Manzo & Thorson, 2021; Sojourner & Pacas, 2018). In fact, the data reveals that economic and social outcomes of union construction workers are competitive with workers with college degrees (Manzo & Thorson, 2021).

PLAs provide access to skilled labor, harmonize work schedules among the different trades, insulate project owners and general contractors from construction risk, and improve on-time project delivery by ensuring that most blue-collar workers on the job site are hired through the union referral system (Ormiston & Duncan, 2022). By hiring union tradespeople who are productive and more cost-effective, PLAs improve job quality for construction workers, expand access to career pathways into the trades, and strengthen public budgets—increasing tax contributions and reducing construction worker reliance on government assistance programs. The utilization of PLAs is a winning formula for project owners, for workers, and for taxpayers.

PLAs Deliver Middle Class Careers and Strengthen Public Budgets

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Both Union and Nonunion Contractors Can Bid on PLA Projects

➔ **Key Messages:**

1. All public PLAs allow nonunion contractors and subcontractors to bid on projects.
2. PLAs establish standards that protect taxpayers and project owners while building a strong America.
3. In addition, research shows that union contractors are less likely to experience project delays due to skilled labor shortages, have lower turnover, deliver higher levels of workforce productivity, and are more cost-effective than the nonunion alternative.

The Facts:

Project labor agreements (PLAs) ensure middle-class wages and family-supporting benefits, a skilled workforce, uninterrupted labor supply, safety standards, and timely completion of projects within budget. Nevertheless, critics falsely claim that they increase costs by requiring union-scale wages and discourage competition from bidders—particularly from nonunion companies that do not want to source union labor or do not want to accept the wages and standards in the PLA for the duration of the project (Moran, 2011).

All public PLAs and many private PLAs explicitly allow nonunion contractors and subcontractors to bid on projects (Belman & Bodah, 2010; BLE, 2005). President Joe Biden's Executive Order requiring PLAs on federal construction projects worth $35 million or more specifically "allow[s] all contractors and subcontractors on the construction project to compete for contracts and subcontracts without regard to whether they are otherwise parties to collective bargaining agreements" (Biden White House, 2022). The U.S. Department of Labor has also noted that "nonunion contractors can choose to bid on projects where PLAs are required or incentivized" and that they "can do so without becoming a union employer for other projects" (USDOL, 2023).

All contractors who are awarded PLA projects, whether union or nonunion, must abide by the wages, training contributions, and other terms specified in the contract. And some nonunion contractors who participate in PLA work do decide to become signatories to collective bargaining agreements upon project completion (Belman & Bodah, 2010).

Nonunion contractors are free to bid on PLA-covered public works projects, but economic research shows that union contractors consistently offer superior outcomes for project owners and taxpayers. Union contractors are less likely to report that it is "very difficult" to find workers, are less likely to experience delays in project completion times due to shortages of skilled workers, have lower worker turnover rates, and employ more productive workers (USEER, 2023; Manzo, Petrucci, & Bruno, 2022; McFadden, Santosh, & Shetty, 2022). As a result, there is no cost difference between union contractors and nonunion contractors on public construction projects (Atalah, 2013; Duncan & Waddoups, 2020; Kim, Kuo-Liang, & Philips, 2012; Manzo et al., 2021). In fact, on industrial and commercial building projects, contractors that source entirely union labor are 4% more cost-effective than the nonunion alternative (McFadden, Santosh, & Shetty, 2022).

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There Are Major Flaws in the Studies Alleging that PLAs Increase Construction Costs

➔ **Key Messages:**

1. Studies alleging that PLAs increase construction costs fail to account for project size, project complexity, and whether the project was completed in urban areas where costs are higher.
2. Labor costs are a low share of total construction costs—approximately 23%.
3. Most studies claiming that PLAs increase total costs are not peer-reviewed and have been released by one anti-union group.

The Facts:

While the most recent analyses in peer-reviewed academic research offer consistent evidence that project labor agreements (PLAs) do not increase public construction costs, there is one peer-reviewed study affiliated with the Beacon Hill Institute that claimed that PLAs have a cost effect. This 2007 study looked at 126 school construction projects in Massachusetts between 1995 and 2003 and estimated that PLAs increased construction costs by 9% to 15% (Bachman & Haughton, 2007). As part of their affiliation with the Beacon Hill Institute—which is officially a "Partner" with the anti-union State Policy Network and American Legislative Exchange Council (ALEC)—the authors also produced five non-peer-reviewed articles on the impact of PLAs on school construction costs in Connecticut, New York, Ohio, New Jersey, and Connecticut again, which all found that PLAs raised costs by about 15% to 20% (Bachman, Haughton, & Tuerck, 2004; Bachman & Tuerck, 2006; Bachman & Tuerck, 2017; Burke & Tuerck, 2019; Burke & Tuerck, 2020).

The results of these studies have been called into question by numerous academic researchers (Ormiston & Duncan, 2022; Kotler, 2011; Belman, Bodah, & Philips, 2007). The primary critiques are that the authors used "lean statistical models" that failed to account for project size and complexity and that they do not account for the location of construction, such as whether the project was completed in an urban area where costs are generally higher (Ormiston & Duncan, 2022). These shortcomings bias and inflate their results.

In fact, a study "modeled closely after several studies done by the Beacon Hill Institute" assessed 108 New England school projects. The authors gathered detailed information on each school project. After accounting for 30 factors, PLAs had no statistically significant effect on school construction costs. Any cost effects "likely have little to do with the PLA itself, but result from the additional amenities or requirements that are inherent in large, complex jobs, which are more likely to be covered by PLAs" (Belman, Bodah, & Philips, 2007).

There are also two non-peer-reviewed reports on the impacts of PLAs on affordable housing costs. The RAND Corporation analyzed 97 affordable housing projects in California between 2017 and 2020 and found that PLAs were associated with a 15% increase in construction costs and an 8% increase in per-unit costs (Ward, 2021). But that report can be countered with a 2015 study of 128 affordable housing projects in Los Angeles, California which found that PLA projects were no more expensive than non-PLA projects (Philips & Littlehale, 2015).

There's a big reason to be skeptical of studies alleging that PLAs increase costs by as much as 20%: Labor costs are a low share of total costs in construction—approximately 23% across the United States (Census, 2017). For PLAs to raise overall costs by 15% to 20%, they would have to nearly double labor costs *and* have no offsetting impacts that boost efficiency—such as higher worker productivity, lower worker turnover, and fewer on-the-job accidents and injuries. This assumption is not only implausible; economic research shows it to be wrong. PLAs do improve job quality for workers, but they also deliver productivity-enhancements—like preventing workforce shortages and labor disruptions—that make them cost-competitive for project owners.

The studies that allege that project labor agreements increase construction costs all suffer from critical flaws that bias their results and call their conclusions into question. In short, they are not grounded in reality. As a result, they can—and should—be disregarded and discarded.

There Are Major Flaws in the Studies Alleging that PLAs Increase Construction Costs

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Common Characteristics of a Project Labor Agreement

➔ **Key Messages:**

1. PLAs ban strikes and lockouts to ensure an uninterrupted supply of qualified labor.
2. PLAs harmonize shift schedules and uphold safety standards to ensure projects are built efficiently.
3. PLAs establish market-competitive wages and working conditions that attract skilled workers and expand construction career pathways.

The Facts:

There are different types of project labor agreements (PLAs). PLAs were initially concentrated around large, complex, long-lasting, and often rural construction projects. Accordingly, many PLAs contained provisions to establish market-competitive wages and safe working conditions that would attract workers and no-strike provisions to insulate owners from conflict between local trade unions and contractors. However, in the 1990s when the industry experienced a boom with low unemployment, construction users were demanding more skilled workers. PLAs emerged as a tool for providing users with an uninterrupted supply of qualified craft workers and for expanding registered apprenticeship programs that invest in training the next generation of skilled construction workers (Belman, Bodah, and Philips, 2007). Over recent years, PLAs have either added elements to support local communities or been incorporated entirely into Community Workforce Agreements (CWAs) aiming to achieve equitable community economic development (Belman & Bodah, 2010; USDOL, 2023).

There are common characteristics of all project labor agreements (USDOL, 2023; Belman & Bodah, 2010; Mayer, 2010; Rodriguez, 2019). These essential elements are:

- Provisions that bind all contractors and subcontractors to the agreement;
- Clauses that ban strikes, lockouts, and similar job disruptions;
- Collectively-bargained wages, fringe benefits, and training contributions for all workers on the project;
- Harmonization of working hours between the different construction trades, including coordination of starting times and holidays;
- Apprenticeship requirements to ensure that the next generation of construction workers is trained;
- The inclusion of pre-apprenticeship programs and aspirational hiring goals for local workers, military veterans, and economically disadvantaged or other underrepresented workers;
- Resolution procedures for disputes that may arise during the project;
- Cooperation on safety standards by specifying that contractors will ensure that applicable Occupational Safety and Health Administration (OSHA) requirements are maintained, that unions agree to cooperate fully, and that employee failure to perform work safely will be grounds for discipline or discharge.

PLAs can also be used to achieve other objectives (USDOL, 2023; Belman & Bodah, 2010). These could include, but are not limited to:

- The creation of labor-management committees to oversee projects and hold “pre-bid” or “pre-job” conferences to resolve issues before they occur on the worksite;
- Provisions related to drug and alcohol testing; and
- Provisions requiring participation of disadvantaged business enterprises or small businesses enterprises.

Ultimately, the essential elements of project labor agreements provide certainty for project owners, enable access to skilled workers for contractors, promote job quality for workers, deliver value for taxpayers, and ensure projects are built safely for the public—but PLAs can include terms to achieve other outcomes as well.

Common Characteristics of a Project Labor Agreement

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RESOURCES

This section provides a variety of resources on Project Labor Agreements. It includes FAQs, user-friendly tables, example opinion pieces, and colorful infographics.

Project Labor Agreements Frequently Asked Questions (FAQs)

*The following is a slightly modified version of the **Project Labor Agreement Resource Guide** published by the U.S. Department of Labor in 2023.*

What is a Project Labor Agreement?
A Project Labor Agreement (PLA) is a type of collective bargaining agreement unique to the construction industry. PLAs are pre-hire collective bargaining agreements negotiated between one or more construction unions and one or more construction employers… that establish the terms and conditions of employment for a specific construction project. Essential elements of PLAs include: provisions that bind all contractors and subcontractors to the agreement; no-strike, no-lockout clauses; and grievance/arbitration procedures. Usually, PLAs also specify the wages and fringe benefits for all workers on a project and generally require contractors to hire workers for the project through a union hiring hall that is responsible for supplying skilled labor. PLAs may also include clauses: outlining goals for hiring local community members on projects; incorporating equity plans; detailing strategic recruitment policies for workers from underserved communities; and requiring participation of small businesses. PLAs can include any number of unique terms to help parties achieve their desired results.

What are the benefits of using PLAs?
PLAs organize complex construction projects and ensure their efficient and timely completion. Because PLAs contain no-strike/no-lock-out clauses, they eliminate delays. … On a complex project, contractors may end up working with multiple trades unions with varying work rules and individual collective bargaining agreements (CBAs). … Without one universal agreement, contractors might end up negotiating individual CBAs with each trade unions that might stipulate different start times, methods for determining overtime, break times, holidays, and dispute resolution processes that make project administration costly and inefficient. PLAs eliminate these issues through harmonization and coordination. In fact, the use of a PLA by the New York City School Construction Authority from 2005–2009 to facilitate the rehabilitation and renovation of schools led to a savings of $221 million dollars over their five-year plan period because of the standardization of shifts across all trades of construction workers.

PLAs provide skilled workers for projects and support programs that maintain and grow a diverse skilled workforce. Most PLAs will include provisions requiring contractors to hire workers through union hiring halls, ensuring that all referred workers are qualified (like journey-workers who have graduated from Registered Apprenticeship Programs certified by the Department of Labor). PLAs… also contain clauses stating that apprentices must accompany journey-workers on projects—providing critical opportunities for entrants into the trades to gain necessary skills. PLAs might also contain provisions related to pre-apprentices…, guaranteeing their exposure to construction work. PLAs… also fund Registered Apprenticeship Programs via joint labor-management partnerships where both unions and employers invest in the development of skilled workers.

Lastly, PLAs lead to improved worker safety and health. PLAs often contain specific provisions laying out required safety trainings and improve workers' awareness and exercise of their right to accompany an OSHA inspector.

Are nonunion contractors prohibited from bidding on projects when PLAs are required or incentivized?
No. Non-union contractors can choose to bid on projects where PLAs are required or incentivized. Nonunion contractors who choose to enter PLAs can do so without becoming a union employer for other projects.[1]

[1] Nonunion contractors do, in fact, bid on projects that require PLAs. *See, e.g.*, John T. Callahan & Sons, Inc. v. City of Malden, 430 Mass. 124, 137 (Mass. 1999) (Project Manager noting that nearly 20% of successful bidders on PLA project were nonunion); *ABC v. S. Nev. Water Auth.*, 979 P.2d 224, 229 n. 1 (Nev. 1999) (six of sixteen contracts awarded under PLA for Southern Nevada Water Authority project were awarded to non-union contractors). Also, for its first wind farm projects, the New York State Energy Research and Development Authority (NYSERDA) required prospective lessees to enter into good faith negotiations for a PLA. NYSERDA garnered a total of 18 proposals from four developers, "the most competitive market response to date among all U.S. state offshore wind solicitations."

Do you have to become a union member to be covered by a PLA?
No. Workers covered under PLAs do not have to join unions to work on construction sites. And it is illegal for unions to discriminate against nonunion workers when making hiring hall referrals. However, non-union workers covered under PLAs may have to pay agency fees to cover costs associated with the duty of unions to fairly represent all workers (union and non-union) in the administration of collective bargaining agreements.[2]

Are PLAs legal in so-called "right-to-work" states?
Yes. PLAs are legal in so-called "right-to-work" states. States with "right-to-work" laws allow workers covered under collective bargaining agreements (receiving services from unions) to forgo paying agency fees for the costs of those services. Right-to-work laws do not make PLAs illegal or impossible.

How are PLAs enforced?
PLAs are enforced through binding arbitration or by the National Labor Relations Board (NLRB) and federal courts. PLAs are legally binding agreements between construction contractors/project owners and construction unions that generally require all parties to resolve disputes over provisions in the PLA via grievance/arbitration procedures negotiated and agreed to by the parties. Workers on projects covered by PLAs may also grieve and arbitrate (via construction unions) issues governed by the PLA related to the terms and conditions of work. Finally, in some cases an issue handled by the NLRB may be appealed to a federal court.

What are Community Workforce Agreements (CWAs)?
Community Workforce Agreements (CWAs) are a type of PLA that includes community-oriented commitments related to equitable workforce development, social justice, small business support, or other issues. Communities around the country have used these types of agreements to ensure that construction projects are effectively completed with a skilled workforce drawing on workers from all backgrounds.

What are Community Benefits Agreements?
Community Benefits Agreements are contracts between employers/developers/contractors/project owners and community organizations (including, but not limited to, unions). These agreements, which can be in the manufacturing sector, the construction sector, or other industries, may include provisions related to affordable housing, pollution reduction, or other community priorities. Community Benefits Agreements are unique to each community and their terms will reflect the varied interests of their signatories.

What are Access and Opportunity Committees?
The Biden-Harris Administration has committed to advancing equity, including through major federal investments such as the Bipartisan Infrastructure Law, the CHIPS and Science Act, and the Inflation Reduction Act. Project owners, contractors, unions, community groups, and other stakeholders can promote equal opportunity by establishing Access and Opportunity Committees (AOCs). AOCs are multi-stakeholder groups that regularly meet to monitor and support compliance with diversity and equity goals on a specific construction project or in a workplace. AOCs are often established by Project Labor Agreements (PLAs), Community Benefit Agreements (CBAs), or other project agreements to ensure that parties to the agreement use best efforts to increase the representation of local workers or underrepresented workers in the construction industry such as women, people of color, young adults, veterans, or people with disabilities.

Where can I learn more?
- Click here to download the U.S. Department of Labor Project Labor Agreement resource guide.
- Click here to learn more about how Project Labor Agreements can be effective tools for equity.
- Click here to learn six key facts about federal-funded Project Labor Agreements.

[2] Although PLAs address labor supply issues by using local union referral procedures, both union and nonunion workers can register for referrals. Many PLAs accommodate nonunion contractors by allowing them to bring core workers to projects.

Project Labor Agreement Research Summary Tables

Key Finding: Academic studies find that PLAs do not affect total construction costs.

ACADEMIC STUDIES ON PROJECT LABOR AGREEMENTS AND PUBLIC CONSTRUCTION COSTS, 2007-2023

Authors	Year	Sample Size	Type of Projects	Geography	Cost Impact	Peer-Reviewed
Manzo & Bruno	2024	95 projects	Airport and seaport	Seattle, WA	*No effect*	No
Philips & Waizman	2021	99 projects	Community college	California	*No effect*	**Yes**
Waddoups & May	2014	319 projects	Public schools	Ohio	*No effect*	**Yes**
Belman, Ormiston, Kelso, Schriver, & Frank	2010	70 projects	Public schools	Massachusetts	*No effect*	**Yes**
Belman, Bodah, & Philips	2007	108 projects	Public schools	New England	*No effect*	No

*NOTE: Outside of traditional public works projects, a 2015 study found that PLAs had no effect on affordable housing projects (Philips & Littlehale, 2015).

Key Finding: Studies find that PLAs do not significantly affect the level of bid competition.

STUDIES ON PROJECT LABOR AGREEMENTS AND BID COMPETITION, 2007-2023

Authors	Year	Sample Size	Type of Projects	Geography	Number of Bids	Peer-Reviewed
Manzo & Bruno	2024	366 bids	Airport and seaport	Seattle, WA	*No effect*	No
Seattle Finance & Administrative Services	2022	521 bids	Municipal projects	Seattle, WA	*No effect*	No
Philips & Waizman	2021	263 bids	Community college	California	*No effect*	**Yes**
Belman, Bodah, & Philips	2007	~720 bids	Public schools	San Jose, CA	*No effect*	No

Key Finding: PLAs facilitate the hiring of registered apprentices and boost investment in joint labor-management apprenticeship programs, which produce most skilled tradespeople across the United States. Since 2005, 19 studies have examined the share of active construction apprentices enrolled in joint labor-management programs. Across the United States, 68% of all apprentices are enrolled in joint labor-management programs. The shares range from 55% in Iowa to 97% in Illinois.

STUDIES ON REGISTERED APPRENTICESHIP PROGRAMS AND CONSTRUCTION APPRENTICE ENROLLMENTS, 2005-2023

Authors	Year	Geography	Share of Construction Apprentices in Joint Labor-Management Programs
Bilginsoy, Bullock, Wells, & Zullo	2024	United States	68%
Manzo, Wilson & Bruno	2023	Indiana	77%
Manzo, Wilson & Bruno	2023	Michigan	75%
Bilginsoy, Bullock, Wells, & Zullo	2022	United States	75%
Petrucci	2021	Portland, OR	72%
Manzo & Gigstad	2021	Iowa	55%
Stepick & Manzo	2021	Oregon	63%
Manzo, Goodell, & Bruno	2021	Wisconsin	81%
Calamuci	2020	California	92%
Manzo & Bruno	2020	Illinois	97%
Waddoups & Duncan	2019	Nevada	92%
Herzenberg, Polson, & Price	2018	Pennsylvania	85%
Manzo & Duncan	2018	Minnesota	93%
Bilginsoy	2017	Michigan	79%
Onsarigo, Atalah, Manzo, & Duncan	2017	Ohio	82%
Duncan & Manzo	2016	Kentucky	79%
Manzo & Bruno	2016	Illinois	98%
Philips	2015	Wisconsin	82%
Bilginsoy	2005	United States	73%

Example Project Labor Agreement Op-Eds

Promoting PLAs on Clean Energy Projects: Marc Poulos. (2023). "Project Labor Agreements Are Key to Our Clean Energy Transition." *Chicago Sun Times*.

Project Labor Agreements are key to our clean energy transition

Project Labor Agreements, or PLAs, enable contractors to know, definitively, what their costs will be, and typically include language that eliminates the risk of strikes, lockouts, or other labor disruptions.

A large-scale American energy transition is upon us. The Inflation Reduction Act, signed into law in 2022 by President Joe Biden, allocates nearly $400 billion for new energy projects, including solar, wind, carbon capture and sequestration, hydrogen, nuclear and more.

It represents what politicians in both parties have long suggested was the key to American energy independence: an "all of the above" strategy.

That is, if we can deploy the sufficiently skilled workforce to build, maintain and operate these facilities.

So how do we do it?

First, we need to acknowledge that for all of their environmental risks, America's legacy fossil fuel sector has produced a largely sustainable workforce model. The industry long ago recognized the importance of partnership with skilled trade unions to attract, train and retain the skilled workforce it needed. Not surprisingly, U.S. government data has found that legacy energy projects typically feature two to three times the level of union density as renewable projects.

Another study, analyzing the energy industry in Minnesota, North Dakota and South Dakota, found that clean energy projects were simply not competitive in the labor market relative to their legacy industry peers, and increasingly reliant on lower-skilled workers from out-of-state to build projects.

To its credit, the Inflation Reduction Act has recognized the importance of job quality and local workforce development as central tenets of America's clean energy transition. Most of the tax incentives linked to new project development require minimum labor standards, including prevailing wages and apprenticeship utilization.

These standards are an insurance policy for taxpayers that ensures often complex projects — like nuclear plants or hydro-electric facilities, for example — are producing quality jobs for our economy and being built by competent workers who will uphold the highest standards of safety and craftsmanship.

However, there is still another tool that can be utilized by project developers to ensure these projects are completed on time and on budget: Project Labor Agreements, or PLAs.

PLAs are a de-risking mechanism. They are pre-hire agreements between employers and skilled trade unions that establish the terms and conditions of employment for all workers on a construction project. They enable contractors to know, definitively, what their costs will be, and typically include language that eliminates the risk of strikes, lockouts, or other labor disruptions that could throw a project off track.

Important to America's energy transition, they would also support a reliable system for developing the skilled workers these projects will demand. And supporting apprenticeships, they would include a built-in method for both contractors and unions to jointly undertake the critical task of workforce development, ensuring programs are sufficiently robust and responsive to both current and future industry needs.

This latter point cannot be emphasized enough. We are living through an historically tight labor market, especially within the construction sector that's needed to build next-generation projects with skill and precision.

Indeed, recent survey data from the Associated General Contractors of America has found non-union contractors were far more likely to report workforce supply issues, project delays due to labor shortages, loss of workers to other industries, and to call their workforce training pipeline "poor" relative to the union alternative. The reason: Because this side of America's construction industry simply does not invest in training or workforce development in the same way as unions and their signatory contractors.

All of which brings me to the issue of project costs, which is a common misconception about PLAs. Yes, workers are better paid and better trained. But these investments in training and job quality represent just a tiny fraction of the overall cost picture. PLAs are a tool that helps prevent workforce shortages and labor disruptions, as well as the lagging productivity, craftsmanship and safety problems associated with under-trained workers that can often increase project costs. This is why researchers from New York to California have concluded that PLAs do not increase overall project costs, nor do they hinder bid competition.

Indeed, research from the non-partisan Illinois Economic Policy Institute analyzed more than 400 PLA projects from our state's Capital Development Board between 2011 and 2013, noting that winning bids typically came in nearly 5% below the original engineer's estimate. It also found that PLA projects experienced a lower rate of cost overruns than comparable private sector projects and were finished within one month of the estimated completion date more than 70% of the time.

Ultimately, PLAs have proven to be a valuable tool for delivering certainty and quality to a new generation of large-scale construction projects. As the Inflation Reduction Act begins the work of transitioning America's complex energy system into this new era, their utilization can be a winning formula for project owners, for workers, and for taxpayers. Most importantly, by promoting job quality and workforce stability for increasingly in-demand industries, they are the insurance policy we need to ensure the critical work ahead truly delivers as promised for our economy and communities.

Marc Poulos is the executive director of the Indiana, Illinois & Iowa Foundation for Fair Contracting.

The Value of PLAs from a Contractor's Perspective: Mark Henderson. (2006). Op Ed on Project Labor Agreements. Originally published in the *Albuquerque Journal*. Available from the New Mexico Building Trades.

As staff and patients moved into the newly created facilities at UNM Hospital, (UNMH) there was even more cause for celebration as the hospital project was brought in on budget, on time.

On July 10, UNMH CEO Steve McKernan praised the trade unions who worked on the project at an event honoring their work. He noted that the project was completed in 930 days, essentially "on-time and on-budget." In 2004, when the University of New Mexico Regents approved the use of the public works Project Labor Agreement (PLA) to expand the Hospital, there was concern that it would not work. But, almost three years later, the proof is in the pudding – with the successful completion of the hospital, the PLA proved to be an extremely effective way to manage and maintain schedules and budgets, particularly for this type of large, complex, publicly-funded construction project that involved a multitude of contractors, subcontractors and workers with specialized skills.

Jack B. Henderson Construction Company was proud to be part of this major construction project.

Cooperative agreements with trade unions are not new. Major projects have been completed successfully in the state such as the Four Corners Power Plant and the SDI – Oro Grande project in Alamogordo. These agreements have proven that they save time and money and are a great service to the public.

When the Regents decided to use a PLA, they were looking for an effective means to complete the UNMH project fast, and at considerably less cost, than they had seen in the past with other UNM construction projects such as the Student Union Building. As the hospital is such an essential community resource, they could not have any construction or labor disputes adversely impacting the facility. Furthermore, because this was a major public project using taxpayer dollars, it

was important that they ensured the money was well spent and that the university and the public received a facility that was well constructed. They needed a reliable supply of skilled workers and stable labor costs; and the PLA provided just that.

The PLA worked because it defined wages and set work rules for the project, so companies like mine knew the entire scope of the project from the start. It also benefited UNMH because they didn't have to negotiate a separate labor agreement with each contractor and each building trade. In the event that there were issues, a process of conflict resolution was also set up to deal with job disputes. Because PLAs have a no-strike clause, UNMH had the peace of mind of knowing that walkouts and other job actions were virtually eliminated. And, given the shortage of skilled construction workers over the last decade, the PLA ensured there were enough qualified workers for the project.

As with any project, the Pavilion Project was not without its challenges. We were challenged with hiring enough medical gas fitters to complete the project on time. In the future we will eliminate this challenge by putting the necessary number of craft professionals through the medical gas training program in time to meet the demand of the Project.

Not only did UNM, taxpayers and local construction companies have the opportunity to greatly benefit from this agreement, the workers also had the opportunity to be winners. Contrary to what some critics of PLAs said when this agreement was implemented, the Regents were not imposing an ideological litmus test on workers. The PLA did not exclude contractors, union or nonunion, from bidding on the project. In fact, nonunion contractors were the winning bidders on UNMH with a number of local subcontractors used for the project.

Many quality jobs – jobs that provided a living wage, health insurance, retirement benefits and training – were created, a boost to the economy of the entire state. The safety record for the UNMH project was world class, and we all benefit when we send our craft workers home safe after each day's work. The UNMH project had an aggressive schedule for a multi-story building, which made for a high-risk project in terms of worker safety. Our hats are off to all of the workers for taking safety as a value and taking care of each other throughout the life of the project.

Now, Albuquerque has a new, state-of-the-art expansion at UNMH that will serve our community and a well-trained workforce to attract economic development. I recommend that you take the time to tour the facility and experience for yourself the finest Children's Hospital anywhere. We are proud of what has been created by all of the Contractors and their respective trades craft, and we think you will be too. UNMH is for our community to use and we could not be in finer hands at another facility anywhere in the world. After seeing the results, there should be no doubt that the PLA provided UNM and taxpayers with substantial benefits in terms of project planning and project delivery. I know that I am satisfied with this experience and look forward to bringing a PLA to the table for future large-scale projects.

Mark Henderson, President, Jack B. Henderson Construction Company, Inc.

The Benefits of PLAs from an Academic Perspective: Martin Bennett. (2023). "Commentary: The Many Benefits of Project Labor Agreements." *The Sonoma Index-Tribune*.

Commentary: The many benefits of Project Labor Agreements

I commend the Sonoma school board for its recent labor agreement as the academic research demonstrates that these agreements are cost-effective, completed on time and on budget and that a highly trained workforce performs the work.

Last year President Joe Biden's administration recognized the benefits of Project Labor Agreements (PLAs, a.k.a. Project Stabilization Agreements) when he signed an executive order requiring PLAs for all large government-funded construction projects. The order will affect $262 billion in federal construction and create 200,000 construction jobs paying middle-class wages while providing comprehensive benefits.

Most importantly, the order addresses two of the central challenges of our time: the loss of high-paying manufacturing jobs since the 1970s and the existential threat of climate change. Many of these new jobs will be good green jobs for constructing wind, solar and other renewable energy facilities.

Locally, the Sonoma Valley Unified School District recently approved a PLA for all construction projects undertaken during the next five years costing more than $212,500. The district joins dozens of California school districts, such as Santa Rosa City Schools, that have adopted PLAs.

I commend the board as the academic research demonstrates that these agreements are cost-effective, completed on time and on budget and that a highly trained workforce performs the work. PLAs establish fair wages and uniform compensation for all crafts and mandate the highest standards for worker health and safety.

What are PLAs?

A PLA is a pre-hire agreement for construction projects requiring skilled labor and coordination amongst numerous crafts, contractors, and subcontractors. These legally binding agreements are made between public agencies, developers, general contractors, and construction trade unions. PLAs set employment terms, work rules and dispute-resolution policies. Local union hiring halls dispatch qualified workers. Strikes and work stoppages are barred.

PLAs have been used in large-scale construction projects in the private and public sectors. In the 1930s, the Shasta Dam in California and the Hoover Dam in Nevada were built with PLAs. More recently, Bay Area PLAs include the expansion of the Oakland and San Francisco airports, the conversion of the Hunters Point Naval Shipyard to a mixed-use project, the construction of the 49ers Santa Clara Levi's Stadium, and also the Warriors San Francisco Chase Center.

Critics claim that PLAs decrease the number of bidders, discourage non-union bidders, and raise construction costs.

What does the research reveal?

In 2016 University of Utah economist Peter Phillips published the most comprehensive study of PLAs for construction projects at California community colleges. His report examined seven construction projects at the College of Marin between 2008-15, four without PLAs and three with PLAs. The study also analyzed 175 community college construction projects without PLAs and 88 with PLAs. Phillips' report concludes that "PLAs do not reduce the number of bidders nor do they raise costs on California community college construction projects."

In 2011, researchers at the Cornell University School of Industrial Relations released a report that also found that PLAs do not drive-up costs for large public works projects but, in fact, can yield cost savings in the seasonal 'boom and bust' construction industry. PLAs ensure the timely completion of projects due to a steady supply of skilled labor, enhanced coordination between contractors, and fewer delays caused by worksite accidents or labor disputes. PLAs are also cost-effective because the high quality of work minimizes long-term maintenance costs and the need to fix costly mistakes.

Moreover, the Cornell study emphasized that PLAs contain costs and provide entry-level job opportunities in the construction industry by requiring workers enrolled in state-certified apprenticeship programs to perform at least 20% of the work. By providing apprenticeship opportunities, PLAs directly address skyrocketing inequality and the "hourglass" economy that concentrates job growth at the top and bottom of the labor market while squeezing the middle.

A five-year apprenticeship can offer North Bay low-income residents and unemployed workers a pathway to the middle class. For example, in 2022, a Sonoma County journeyman union electrician employed year-round earned $115,648 plus excellent medical and retirement benefits–and apprentices "earn while they learn" with no tuition debt.

The North Bay Building Trades Council has developed a free ten-week pre-apprenticeship program that teaches the basic skills required to enter fourteen skilled trades apprenticeship programs. Construction unions collaborate with nonprofit organizations and local schools to prioritize recruiting low-income residents, disadvantaged youth, women, minorities and veterans to the pre-apprenticeship program.

Finally, another 2011 study by the UCLA Institute for Research on Labor and Employment analyzed the public benefits of a 2003 PLA approved by the Los Angeles Unified School District, which spent $8.7 billion for new construction and renovation between 2003-10. That PLA included provisions mandating that 25% of the contractors be small businesses; that half the workforce must reside within the school district boundaries; that 30% of the workforce must be apprentices enrolled in certified apprenticeship programs (and recruited through pre-apprenticeship programs); and that the construction workforce must reflect the racial and ethnic diversity of the district.

PLAs are good public policy–for taxpayers, workers and contractors.

Martin J. Bennett is an instructor emeritus of history at Santa Rosa Junior College, a consultant for UNITE HERE Local 2, and a 30-year Sonoma Valley resident.

Response to ABC from a Fair Contracting Group: Kimberly Glassman. (2018). "PLAs Good for Construction Industry." *Hartford Business Journal*.

PLAs good for construction industry

On Feb. 12, an op-ed in the HBJ ("State must end project labor agreements") by the Connecticut chapter of the Associated Builders and Contractors presented an over-simplified and inaccurate description of project labor agreements.

A project labor agreement, or PLA, is a pre-hire agreement that sets construction project employment terms. They're often used on complex projects that require the services of multiple contractors and subcontractors over a sustained period of time. PLAs are a common procurement method for the state of Connecticut, municipalities and private developers.

The Associated Builders and Contractors (ABC) likes to tout their membership numbers. However, they represent only 1 percent of construction companies in the United States. According to the National Labor College, a meager 22,260 apprentices were enrolled in ABC programs, compared to over 420,000 apprentices enrolled in union-funded programs.

Though we appreciate ABC's attempt to paint the use of PLAs as a partisan issue by invoking Gov. Malloy's decision to utilize the agreements, they fail to disclose other elected leaders' use of them. Republican Mayor Mark Boughton recently signed a PLA for Danbury High School. Former Republican Mayor John Harkins signed PLAs for both the Victoria Soto Elementary School and Stratford High School. And former Gov. John Rowland signed a historic PLA on Adriaen's Landing in Hartford.

There is nothing that precludes non-union contractors from bidding on a PLA project. Federal law prohibits employers from discriminating against employees based on union membership. Rather than offer a weak argument for outlawing PLAs as a procurement method, we should ask why ABC and non-union contractors don't compete for those projects.

According to the U.S. Census Bureau's 2006 Survey, only 21 percent of workers in the non-union sector of the U.S. construction market were receiving retirement benefits. That's abysmal.

Under a PLA, all contractors are required to abide by collective bargaining agreements to meet the needs of a specific project. Those agreements dictate wages and benefits, like health insurance and retirement plans. Other important aspects might include provisions for utilizing apprentices, local hiring goals, set-aside goals for minority and women-owned businesses, and a commitment to utilize returning veterans through programs like "Helmets to Hardhats."

PLAs in Hartford and New Haven have provided secure job opportunities for local residents. Absent these agreements, residents are often overlooked for employment on projects being built in their own community. The local hiring goals specified in PLAs have contributed to millions of dollars being recycled into Connecticut's economy.

ABC argues that PLAs raise the cost of construction. Yet studies by UCLA, Cornell and other leading institutions have concluded that there is simply no evidence to back up this claim. UC Berkeley Center for Labor Research and Education published a study in 2017 that found that PLA projects have more bidders and lower bids than non-PLA projects.

If PLAs raised the cost of construction, then profit-oriented corporations wouldn't consistently use them. Corvus Capital Partners LLC just signed a PLA on the Bridgeport Cherry Street Lofts and the Bridgeport Landing Development LLC signed a PLA for the Steel Pointe Harbor project.

ABC referenced an erroneous 2009 study published by right-wing think tank Beacon Hill Institute (BHI) at Suffolk University. It's worth noting that BHI and Suffolk University severed ties in 2016. In 2015, The Guardian reported that BHI is associated with ultra-conservative groups like the American Legislative Exchange Council (ALEC) and the Koch Brothers.

To call for the repeal of an entire procurement method simply on the grounds that an infinitesimal segment of non-union contractors don't like having to pay area standard wages and into benefit funds is disingenuousness.

Kimberly Glassman is the director of the Foundation for Fair Contracting of Connecticut.

Response to ABC from a Union Official: Jim Cahill (2016). "In My Opinion: Opposition to Labor Agreement Self-Serving." *Press-Republican*.

In My Opinion: Opposition to Labor Agreement self-serving

Right on cue, Brian Sampson and the Associated Builders and Contractors is once again spewing its anti-competitive propaganda, this time in relation to a $200 million project in the Plattsburgh area.

Specifically, in his July 1 op-ed entitled, "Keep costly provision off SUNY Polytech project," Mr. Sampson's angst was precipitated by the possibility the project would be built under a Project Labor Agreement.

Mr. Sampson's claim that a Project Labor Agreement on this project would be "costly and exclusionary" is completely untrue. Non-union contractors are never excluded from bidding on public works projects. In fact, excluding them would be illegal under the state's competitive bidding law.

To be fair, Mr. Sampson effectively acknowledged later in his piece that any "exclusion" would be self-imposed by contractors who "chose" not to bid under a Project Labor Agreement.

In that regard, he is correct. Every contractor — union or non-union — has a choice: They can compete for the work by bidding on the job, or they can step aside and complain.

Either way, the Project Labor Agreement will ensure the work is completed on-time, on-budget and by a skilled workforce.

While Mr. Sampson is quick to point out that the Buffalo Billion/Solar City project, which includes a Project Labor Agreement, is under investigation, he fails to mention that the investigation is completely unrelated to that agreement.

Rather, the scrutiny of that project stems from the involvement of a not-for-profit corporation and the non-traditional nature of the investment, which raises questions as to the "public" status of the project and level of transparency that is required.

If the Plattsburgh project is handled in a similar manner, the inclusion of a Project Labor Agreement is even more vital to the success of the project. Why? Because the agreement provides some measure of accountability and ensures, at the

very least, that the work is being carried out efficiently and that the workforce is protected against unsafe or unfair working conditions.

To be clear, if the Plattsburgh project is deemed a public works project — as it should be based on the investment of public money — a Project Labor Agreement can be utilized only if an independent study determines it would further the state's competitive bidding law by protecting the public fisc and preventing favoritism.

Therefore, by definition, a Project Labor Agreement on the project would ensure that taxpayers are getting the best bang for their buck.

Despite Mr. Sampson's rhetoric, it's a well-settled principle that public Project Labor Agreements do not exclude the local workforce nor do they require 100 percent union membership.

Any Project Labor Agreement that requires 100 percent union membership would have to be a private one, entered into post-bid by a contractor who is exercising his private business judgment.

In fact, many government entities embrace the use of public Project Labor Agreements when it's feasible to do so because they promote local hiring and can provide unique opportunities for veterans, minorities and women eager to establish themselves in the construction trades.

Mr. Sampson's apparent concern for the local workforce is actually disingenuous and really nothing more than a red herring designed to distract the reader from the ABC's true priority.

You see, the ABC is an association of contractors — for-profit businesses — and it's their job to protect these businesses. To them, the local workforce is a commodity, and any agreement, including a Project Labor Agreement, which protects Labor's rights, is toxic to their business model.

Of course, they can say they are concerned about the local construction workers who choose not to join a union, but we all know that they don't represent these workers; they represent contractors.

The ABC is not concerned about whether non-union workers have opportunities to work on government funded projects; they're concerned about how much profit non-union contractors can generate from these projects.

So please, ABC, if you want to continue to oppose Project Labor Agreements, at least have the courage to be clear about your interests. Don't pretend to be a voice for workers because if you were, you'd be a union.

Jim Cahill is president of the New York State Building & Construction Trades Council.

Response to Proposed Bill Banning PLAs: David Wondolowski and Matthew Szollosi. (2015). "Project Labor Agreements Make Sense for Everyone." *Cleveland Plain Dealer*.

Project labor agreements make sense for everyone: David Wondolowski and Matthew A. Szollosi (Opinion)

Recently, Baylor Myers, director of the ultra-conservative Americans for Prosperity group, in an op-ed for the Cleveland-area Sun newspapers, called for passage in Ohio of legislation that would effectively prohibit public-sector project labor agreements. His proposal, and the reasoning for it, demonstrates a clear lack of understanding of the construction industry.

In the course of governmental efficiency arguments at all levels, we often hear "government needs to operate more like a business!" Project labor agreements have been commonly used in the private sector as a means of project delivery for decades.

Yet, in this instance, proponents in Ohio -- who earlier this year were unsuccessful in prohibiting PLAs but added a provision to the state budget, House Bill 64, that requires a public hearing by state agencies whenever PLAs are contemplated -- seek to take a proven, successful tool off the table for all public authorities and all state agencies.

If utilization of project labor agreements artificially increases costs of construction by up to 22 percent, as Mr. Myers suggested, why do dozens of Ohio's largest and most successful corporations utilize project agreements for their capital improvement projects?

Based on his reasoning, corporate leaders for Honda of America Manufacturing, Eaton Corp., Cleveland Clinic, MetroHealth Systems, LTV Steel, University Hospitals, General Motors, British Petroleum, FirstEnergy, American Electric Power, Proctor & Gamble, Ford Motor Co., Key Bank and scores of additional Ohio corporations, all of whom have utilized project labor agreements for specific construction projects, have a lot of explaining to do to their shareholders for unnecessarily wasting money.

Or, is it possible that these corporations, and their construction management teams, engineers, architects and capital improvement professionals, understand that utilization of project labor agreements on certain complex construction projects ensures project delivery on time, on budget, and with the highest degree of workmanship?

By guaranteeing no strikes and no lockouts, standardizing work schedules and payment arrangements, providing dispute resolution procedures, and assuring contractors have ready access to licensed, highly skilled construction workers, PLAs help both public-sector and private-sector project owners meet their goals for their construction projects.

According to a recent study published by Cornell University's School of Industrial and Labor Relations: "Project Labor Agreements make sense for public works projects because they promote a planned approach to labor relations, allow contractors to more accurately predict labor costs and schedule production timetables, reduce risks of shoddy work and costly disruptions, and encourage greater efficiency and productivity."

As a prime example, the Cuyahoga County Convention Center Hotel, currently on schedule for its June 2016 opening, is being built pursuant to a project labor agreement. This $272 million project is on an extremely tight timeline, with the Republican National Convention slated for July 2016. This project agreement essentially eliminates delay, consolidates terms and conditions from over a dozen different collective bargaining agreements for the project into one, and helps ensure the highest-quality workmanship for the taxpayers. Imagine the national embarrassment for Northeast Ohio if this critical project was not completed on time! Yet, this agreement would likely have been prohibited under the language originally set forth in HB 64.

Public-sector PLAs are not mandatory, nor do they prohibit non-union contractors from bidding on taxpayer-funded projects. Such a prohibition would violate Ohio's competitive bid laws. However, PLAs are essential management tools that, on specific projects, further the taxpayers' interest in acquiring the best possible construction services at the lowest possible price.

A blanket prohibition on public-sector PLAs, as recommended by Mr. Myers, would unnecessarily eliminate a valuable tool for project owners to consider for their complex construction needs and would represent poor public policy.

David Wondolowski is executive secretary and business manager of the Cleveland Building and Construction Trades Council. Matthew A. Szollosi is executive director of Affiliated Construction Trades Ohio.

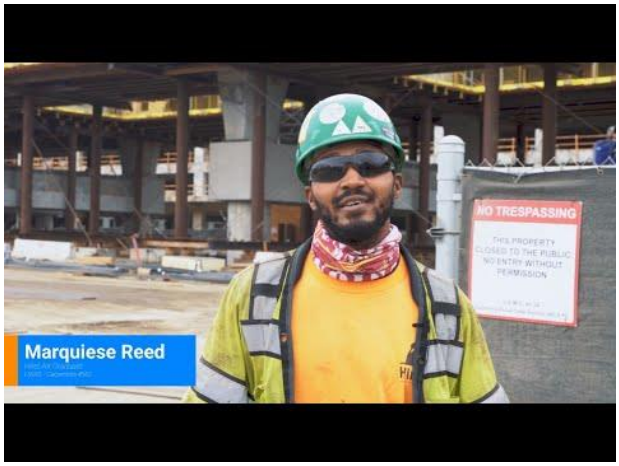
Example Project Labor Agreement Videos

PLA 101 Webinar
U.S. Department of Labor

Kilmer Speaks in Support of PLAs
Rep. Derek Kilmer (D-WA)

Benefits of Project Labor Agreements
Hudson Valley Building Trades

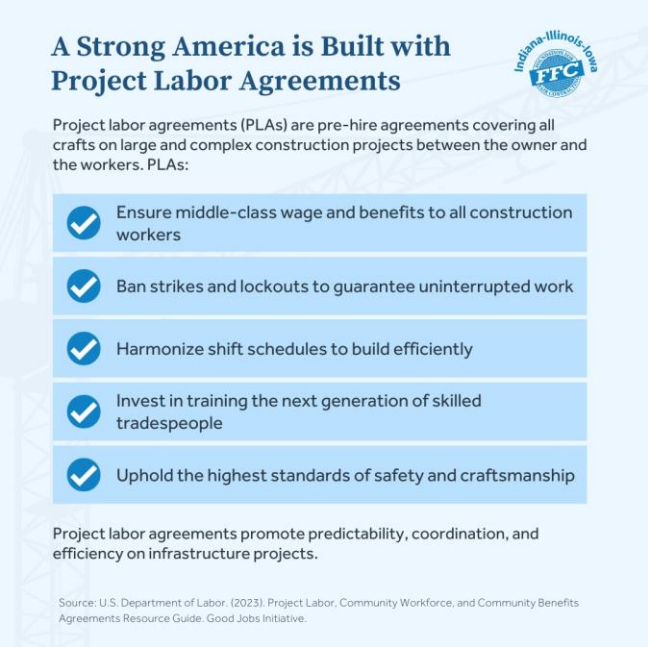
New Report Shows PLAs Work
Building and Construction Trades Department

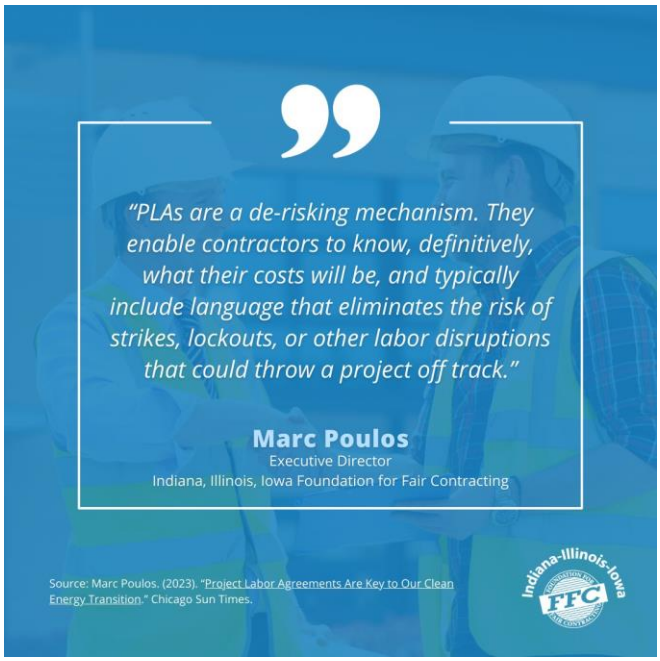


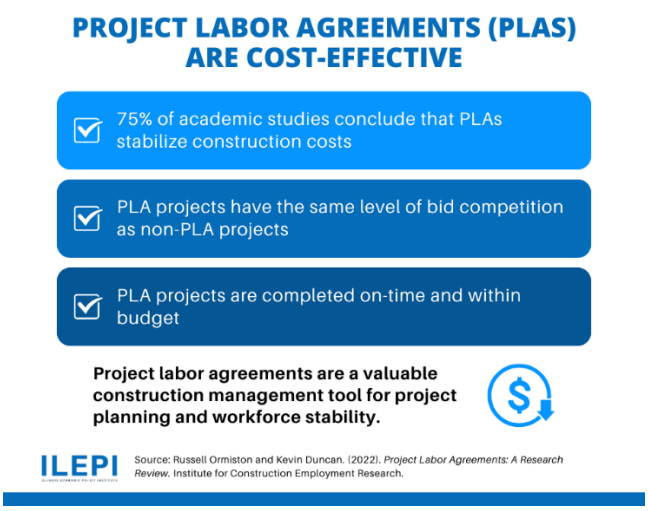
LA World Airports' PLA Extension
LAX Airport

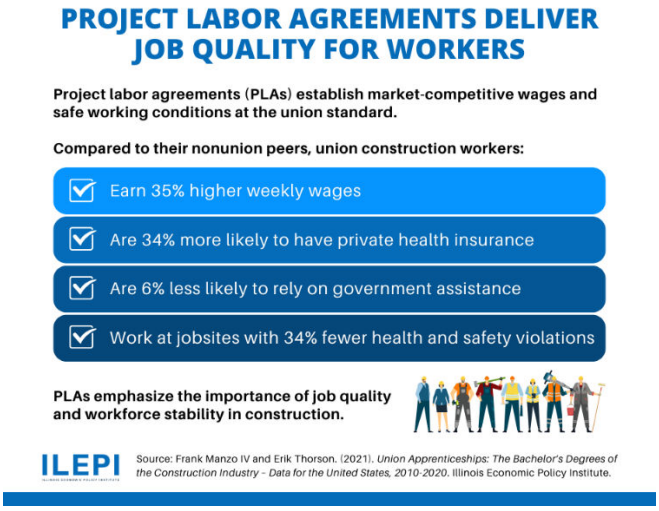
What Is a PLA? How Do I Sign On?
Holt Construction & American Airlines

Example Project Labor Agreement Infographics









UNION CONSTRUCTION LABOR IS 4% MORE COST-EFFECTIVE

A study of 1,550 industrial and commercial building projects built between 2000 and 2022 found:

- Union construction workers are 14% more productive
- Worker turnover is 33% less likely when union labor is used
- Projects are 40% less likely to experience shortages of workers with union labor
- Union construction labor reduces overall project cost by 4%

ILEPI Source: Michael McFadden, Sal Santosh, and Ronit Shetty. (2022). *Quantifying the Value of Union Labor in Construction Projects*. Independent Project Analysis.

PROJECT LABOR AGREEMENT CASE STUDY ON PORT OF SEATTLE PROJECTS

- A project labor agreement (PLA) is a pre-hire agreement that establishes terms and conditions of employment for all crafts on large infrastructure projects.
- The Port of Seattle has used PLAs on public works projects valued at $5 million or more since 1999.
- Since 2016, the Port has included apprenticeship utilization and workforce diversity goals on projects valued at $1 million or more.
- Port of Seattle project data shows that PLAs stabilize construction costs, strengthen apprenticeship training, and expand access to construction career pathways for more workers.

Source: Frank Manzo IV and Robert Bruno. (2024). *The Impacts of Project Labor Agreements on Competition, Costs, Apprenticeships, and Diversity: Evidence from Port of Seattle Projects*. Illinois Economic Policy Institute; University of Illinois.

ILEPI ILLINOIS PROJECT FOR MIDDLE CLASS RENEWAL

PLAS ENSURE COMPETITIVE BIDDING AND STABILIZE CONSTRUCTION COSTS

- Port of Seattle: 23 projects covered by PLAs vs. 72 projects that did not have PLAs
- Bid Competition: 4.3 bids per project on PLA projects vs. 3.7 bids per project on non-PLA projects
- Construction Costs: PLAs have no effect after accounting for project size and complexity
- Awards Below Engineer's Estimate: 74% of PLA projects vs. 69% of non-PLA projects

Source: Frank Manzo IV and Robert Bruno. (2024). *The Impacts of Project Labor Agreements on Competition, Costs, Apprenticeships, and Diversity: Evidence from Port of Seattle Projects*. Illinois Economic Policy Institute; University of Illinois.

ILEPI ILLINOIS PROJECT FOR MIDDLE CLASS RENEWAL

PROJECT LABOR AGREEMENTS COMBAT SKILLED LABOR SHORTAGES

An analysis of Port of Seattle projects reveals that:

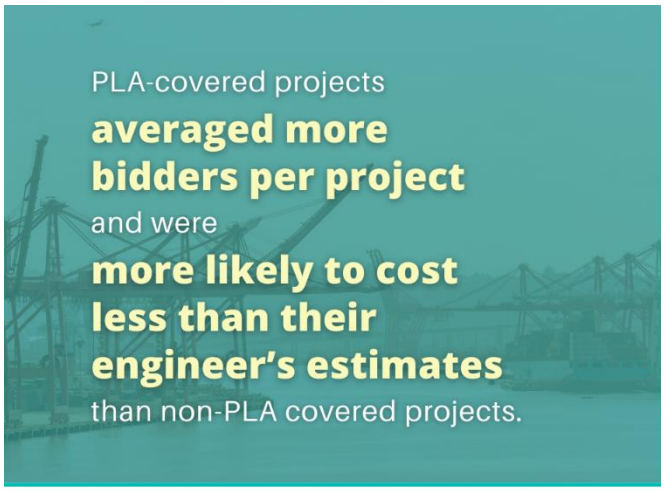
- PLA-covered projects had 5% more labor hours worked by apprentices than non-PLA projects.
- PLA-covered projects are 23% more likely to achieve apprenticeship utilization goals than non-PLA projects.
- PLA-covered projects are twice as likely to meet women apprentice goals (55%) as non-PLA projects (29%).
- People of color account for a larger share of apprentice hours on PLA-covered projects than non-PLA projects.

PLAs increase apprenticeship training and expand construction career opportunities to disadvantaged workers.

Source: Frank Manzo IV and Robert Bruno. (2024). *The Impacts of Project Labor Agreements on Competition, Costs, Apprenticeships, and Diversity: Evidence from Port of Seattle Projects*. Illinois Economic Policy Institute; University of Illinois.

ILEPI ILLINOIS PROJECT FOR MIDDLE CLASS RENEWAL

Source: Frank Manzo IV and Robert Bruno. (2024). *The Impacts of Project Labor Agreements on Competition, Costs, Apprenticeships, and Diversity: Evidence from Port of Seattle Projects.* Illinois Economic Policy Institute; University of Illinois.



Source: Frank Manzo IV and Robert Bruno. (2024). *The Impacts of Project Labor Agreements on Competition, Costs, Apprenticeships, and Diversity: Evidence from Port of Seattle Projects.* Illinois Economic Policy Institute; University of Illinois.

The Skilled Labor Shortage:

Union Contractors vs. Nonunion Contractors

- Union contractors are **21% less likely to experience project delays** due to worker shortages
- Union contractors are **14% less likely to experience difficulty in filling craft worker positions**
- Union contractors have been **8% more likely to add workers** in the current labor market
- Joint labor-management (union) programs **train the vast majority of registered apprentices**

**Source: Surveys of Associated General Contractors of America (AGC) member firms, including 1,768 union contractors and 3,893 nonunion contractors.*

The Labor Market Competitiveness of Construction Firms

Contractor Experiences: AGC Surveys	Union Contractors	Nonunion Contractors
Experiencing Project Delays Due to Worker Shortages	47%	68%
Say Local Pipeline of Well-Trained Workers is "Poor"	29%	56%
Report Losing Hourly Craft Workers to Other Industries	17%	30%
Average Annual Pay of Construction Workers	$58,000	$39,700

Because they invest in job quality, union contractors are better able to attract, develop, and retain skilled construction workers.

RESEARCH

Do you need more information on research that has been published on Project Labor Agreements? Look no further. This section provides summarized key findings for more than 100 studies and articles that are relevant to PLAs, union construction, and registered apprenticeship training.

Research Sorted by Topic and Year

Project Labor Agreements

Ormiston, Russell and Kevin Duncan. (2022). *Project Labor Agreements: A Research Review*. Institute for Construction Employment Research; Allegheny College; Colorado State University-Pueblo.

- Key Finding: To date, this review of the PLA research is the gold standard. Professor Ormiston and Professor Duncan conclude that, while economic research on PLAs is limited, peer-reviewed studies have found that PLAs do not affect the number of bidders and that "PLAs do not have a statistically significant effect on school construction costs." They also find that non-academic studies claiming that PLAs increase school construction costs by 15%-20% use "lean statistical models" that do not account for project size and complexity or for whether projects are built in urban areas where costs are generally higher.

Manzo IV, Frank and Robert Bruno. (2024). *The Impacts of Project Labor Agreements on Competition, Costs, Apprenticeships, and Diversity: Evidence from Port of Seattle Projects*. Illinois Economic Policy Institute; University of Illinois.

- Key Finding: An analysis of 95 aviation and seaport projects awarded by the Port of Seattle between 2016 and 2023 found that PLAs had no statistically significant impact on bid competition or construction costs, after accounting for project size and complexity. In fact, projects covered by PLAs averaged more bids (4.3) than non-PLA projects (3.7). PLA projects had 5% more labor hours worked by apprentices, were 23% more likely to achieve apprenticeship utilization goals, and were twice as likely to meet women apprentice goals (55%) as non-PLA projects (29%). Furthermore, people of color accounted for a larger share of apprentice hours on PLA projects (37%) than non-PLA projects (35%). PLAs increase apprenticeship training and expand construction career opportunities for historically disadvantaged workers.

Petrucci, Larissa, Grace Dunn, and Matthew Hinkel. (2023). *The Effect of Project Labor Agreements on Completion Timeliness for Public Works Construction in California*. NorCal Construction Industry Compliance; Illinois Economic Policy Institute; Alma College.

- Key Finding: This study of 292 total infrastructure projects (73 city agency projects and 219 school construction projects) constructed in Sacramento County, California between 2018 and 2023 includes 59 covered by PLAs (29 city agency projects and 30 school construction projects). City projects were all $1 million or more and school district projects were all over $500,000, which are the thresholds for PLA coverage. The authors obtained certified payroll records and evaluated the number of calendar days each project took to finish. Researchers found that, after accounting for project size, project type (new construction or alteration/repair), location in an urban area, agency type (city or school), construction type (infrastructure or building), start year, and end year, PLA-covered projects come in between 15% and 19% faster than non-PLA projects. PLA projects are completed 21% faster on city agency projects and 19% faster on school construction projects.

United States Department of Labor (USDOL). (2023). *Project Labor, Community Workforce, and Community Benefits Agreements Resource Guide*. Good Jobs Initiative.

- Key Finding: This two-page U.S. Department of Labor fact sheet includes answers to: What is a Project Labor Agreement? What are the benefits of using PLAs? Do you have to become a union member to be covered by a PLA? Are non-union contractors prohibited from bidding on construction projects when PLAs are required or incentivized? Are PLAs legal in so-called "right-to-work" states? How are PLAs enforced? What are Community Workforce Agreements (CWAs)? What are Community Benefits Agreements?

United States Department of Labor (USDOL). (2023). *Project Labor Agreements as Tools for Equity*. Good Jobs Initiative.

- Key Finding: This two-page U.S. Department of Labor fact sheet shares the "essential elements of PLAs" but notes that "[b]ecause PLAs can include any number of unique terms to help parties achieve their objectives, they can be used to ensure equal employment opportunity, create policies that uplift underserved workers, and redress historic and current inequities" before providing examples to improve workforce diversity.

United States Department of Labor (USDOL). (2023). *Six Key Facts About Federally-Funded Project Labor Agreements*. Good Jobs Initiative.

- Key Finding: This one-page U.S. Department of Labor fact sheet notes that 1.) any contractor—both union and nonunion—can bid and win federal contracts and grants requiring ore preferencing the use of a PLA, 2.) small and disadvantage business enterprises can bid on, and participate in, PLA projects, 3.) workers are not required to join unions to work on PLA projects, 4.) PLAs are legal in so-called "right-to-work" states, 5.) PLAs open doors for women and people of color, and 6.) PLAs apply only to the construction industry.

United States Department of Labor (USDOL). (2023). *Access and Opportunity Committees (AOCs)*. Good Jobs Initiative.

- Key Finding: This four-page U.S. Department of Labor fact sheet discusses Access and Opportunity Committees, which are multi-stakeholder groups that regularly meet to monitor and support compliance with diversity and equity goals established by PLAs and which ensure that the parties use best efforts to increase the representation of local workers or underrepresented workers in the construction industry such as women, people of color, young adults, veterans, or people with disabilities.

North America's Building Trades Unions (NABTU). (2023). *Comments of North America's Building Trades Unions on the Office of Management and Budget's Proposal to Revise Guidance for Grants and Agreements*. Regulations.gov.

- Key Finding: Between January 2022 and June 2023, NABTU tracked *at least* 428 projects covered by PLAs on construction valued at more than $184 billion, including over 120 public projects and 300 private projects.

Glass, Aurelia and Karla Walter. (2023). *How Project Labor Agreements and Community Workforce Agreements Are Good for the Biden Administration's Investment Agenda*. Center for American Progress.

- Key Finding: PLAs "are effective tools for creating good value on taxpayer-funded projects, ensuring workers earn fair wages and good benefits, and increasing job access for workers from all walks of life, especially women and workers of color." On the US Bank Stadium project in Minnesota, the PLA and equity plan resulted in women and people of color holding 45% of the 7,500 jobs on the project, exceeding original targets by 7 percentage points.

Bennett, Martin. (2023). "Commentary: The Many Benefits of Project Labor Agreements." *The Sonoma Index-Tribune*.

- Key Finding: PLAs are cost-effective, ensuring that projects are completed on time and on budget and that a highly trained workforce performs the work. PLAs establish fair wages and uniform compensation for all crafts and mandate the highest standards for worker health and safety. PLAs are good public policy–for taxpayers, workers, and contractors.

Poulos, Marc. (2023). "Project Labor Agreements Are Key to Our Clean Energy Transition." *Chicago Sun Times*.

- Key Finding: A large-scale energy transition is only possible if we can deploy the sufficiently skilled workforce to build, maintain, and operate these facilities. PLAs can be utilized by project developers to ensure clean energy and zero-carbon projects are built on-time and on-budget. They are a de-risking mechanism that enable contractors to know, definitively, what their costs will be, include language that eliminates the risks of strikes or lockouts, and support a reliable system for developing skilled workers. By promoting job quality and workforce stability for increasingly in-demand industries, PLAs are the insurance policy we need deliver as promised for our economy and communities.

US Bank Stadium. (2023). "History." Minnesota Sports Facilities Authority.

- Key Finding: US Bank Stadium in Minnesota was constructed with a PLA, created 8,000 construction jobs (with up to 1,500 workers on-site at a time) and 3.8 million work hours, and was completed 6 weeks ahead of schedule.

Port of Seattle. (2023). "Project Labor Agreement."

- Key Finding: The Port of Seattle has used PLAs on major public works projects since 1999. Most Port projects costing $5 million or more are covered by PLAs. The Port of Seattle evaluates every project to determine whether a PLA should be applied. While projects with an engineer's estimate of more than $5 million start "in favor" of a PLA, other factors are considered to determine PLA coverage, per Resolution 3725. In October 2016, the Port Commission added apprenticeship utilization goals and encouraged aspirational people of color and women hiring goals for projects costing $1 million or more.

Kelsay, Michael and Gabriel Pleites. (2022). Respondent Statement to DOD, GSA, and NASA Notice of Proposed Rulemaking on Federal Acquisition Regulation: Use of Project Labor Agreements for Federal Construction Projects (RIN 9000-AO40). University of Missouri – Kansas City; University of Utah.

- Key Finding: Responding to requests for comments, the authors analyze peer-reviewed and non-peer-reviewed studies related to the economic effects of PLAs. They show that some studies find misleading and biased results due to not including relevant variables such as project location and size. In their conclusion, the authors state that "[t]he extant peer-reviewed literature unequivocally shows that PLAs do not lead to higher construction costs or reduced bidding after including proper control variables in the models."

Ormiston, Russell. (2022). *Comment on "Federal Acquisition Regulation: Use of Project Labor Agreements for Federal Construction Projects*." Allegheny College.

- Key Finding: Professor Ormiston concludes that the total administrative cost of President Biden's Executive Order requiring PLAs on federal infrastructure projects costing at least $35 million estimated by the federal government ($7 million annually) is reasonable. While he does offer areas to improve the estimate, he notes that the federal government's assumptions "cannot be effectively evaluated at this time."

Seattle Finance & Administrative Services (FAS). (2022). *2021 Priority Hire Annual Report*. City of Seattle.

- Key Finding: Between 2015 and 2021, the average number of prime contractors bidding on projects covered by PLAs with targeted hiring provisions was the same (3.6 bids) as comparable projects conducted without PLAs (3.6 bids).

Department of Transportation (DOT). (2022). *Notice of Funding Opportunity for the Department of Transportation's National Infrastructure Investments i.e., the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Grant Program) under the Infrastructure Investment and Jobs Act ("Bipartisan Infrastructure Law")*. U.S. Department of Transportation.

- Key Finding: Example Notice of Funding Opportunity (NOFO). See also U.S. Department of Commerce Notice of Funding Opportunity No. 2023-NIST-CHIPS-CFF-01, 22-23 (2023), CHIPS-Commercial Fabrication Facilities NOFO Amendment 1.

Biden White House. (2022). "Executive Order on Use of Project Labor Agreements For Federal Construction Projects." The White House.

- Key Finding: In 2022, President Joe Biden issued an Executive Order requiring that PLAs be used on federal construction projects worth $35 million or more.

McFarland, Pam. (2022). "Federal Labor Proposal Flares Union, Industry Tensions." *Engineering News-Record*.

- Key Finding: "PLAs also have been used on many megaprojects in the private sector for decades. Some of these projects have been for industry giants like Toyota, Apple and Intel."

Donald, Elizabeth. (2022). "Pritzker Makes Major Push for Workers' Rights Amendment." *Labor Tribune*.

- Key Finding: Governor JB Pritzker says that he signed more than 800 PLAs during his first term between 2019 and 2022, more than all other 49 states combined.

Briggs, Dave. (2022). "Bally's Signs Deal With Organized Labor To Build Chicago Casino." *PlayIllinois.com*. Catena Media.

- Key Finding: Gaming companies like Bally's use PLAs to build casinos on private sector projects.

Clark, John and Alexis Carpello. (2021). "Project Labor Agreement Signed for Hard Rock Casino Construction." *MyStateline.com*. WTVO.

- Key Finding: Gaming companies like Hard Rock Casino use PLAs to build casinos on private sector projects.

Philips, Peter and Emma Waitzman. (2021). "Do Project Labor Agreements Reduce the Number of Bidders on Public Projects? The Case of Community Colleges in California." *Public Works Management and Policy*, 26(4): 337-358.

- Key Finding: An analysis of 263 bid openings on 99 community college projects in California between 2007 and 2016 finds that controlling for the location where the project occurred, the size of projects, the business cycle, and the season when the project was let, the number of bidders on a project was not altered by the presence or absence of project of PLAs. After accounting for project size and complexity through the engineer's estimates, PLAs also had no effect on total construction costs.

Ward, Jason. (2021). *The Effects of Project Labor Agreements on the Production of Affordable Housing: Evidence from Proposition HHH*. RAND Corporation.

- Key Finding: An analysis of 97 affordable housing projects in California between 2017 and 2020 claims that PLAs construction costs by 15% and per-unit costs by 8%. But another 2015 study of 128 affordable housing projects in Los Angeles, California found that PLA projects were no more expensive than non-PLA projects.

Akers, Mick. (2020). "Allegiant Stadium Construction Surpasses Community Benefit Goals" *Las Vegas Review-Journal*.

- Key Finding: Allegiant Stadium in Las Vegas was built with a community benefits agreement (CBA) that included a PLA, created 12,000 construction workers (including 2,400 workers on-site at once at its peak), and finished on time and on budget while meeting equity and local hire goals—with 63% of work hours performed by women and people of color, Nevada residents accounting for 80% of the workforce, and Nevada-based contractors doing 70% of the work.

Tennessee Valley Authority (TVA). (2020). "TVA Announces Historic Extension of Labor Agreement."

- Key Finding: The Tennessee Valley Authority, the nation's largest public power company, has used a master PLA since 1991 and entered into a 10-year extension through 2031.

Executive Order (EO) 19-2. (2019). "Executive Order Strengthening Working Families." Governor of Illinois JB Pritzker.

- Key Finding: "All State Agencies shall immediately take action to comply with the Project Labor Agreements Act" because PLAs provide "assurance that public works projects will be completed with highly skilled workers," "provide for peaceful, orderly and mutually binding procedures for resolving labor issues," and "allow public agencies to predict more accurately the actual cost of the public works project."

New York State Energy Research and Development Authority (NYSERDA). (2019). Fact Sheet: Offshore Wind Contracts and Phase One Report. New York State.

- Key Finding: The New York State Energy Research and Development Authority (NYSERDA) required prospective lessees for its first wind farm to enter into good faith negotiations for a PLA. NYSERDA garnered a total of 18 proposals from four developers, "the most competitive market response to date among all U.S. state offshore wind solicitations."

Rodriguez, Juan. (2019). "Project Labor Agreements (PLA) – Labor Agreement." *LiveAbout*.

- Key Finding: Common PLA clauses include: No strike, no lockout, no slowdown or interruption of labor; union procedures governing hiring; standardized schedules and time provisions; wage rates and fringe benefits negotiated under collective bargaining agreements; labor escalation clauses prohibited for the duration of the PLA; safety requirements and compliance.

Glassman, Kimberly. (2018). "PLAs Good for Construction Industry." *Hartford Business Journal*.

- Key Finding: The Associated Builders and Contractors (ABC) likes to tout their membership numbers, but they represent just 1% of construction companies in the United States. ABC often fails to disclose that Republican elected officials use PLAs on public works projects. They also fail to note that there is nothing that precludes nonunion contractors from bidding on PLA projects, and federal law prohibits employers from discriminating against employees based on union membership. The truth is that PLAs meet the needs of specific projects, include provisions for utilizing apprentices and local hiring goals, and have more bidders, and lower costs for taxpayers.

Duncan, Kevin and Russell Ormiston. (2018). "What Does the Research Tell Us About Prevailing Wage Laws?" *Labor Studies Journal*, 44(2): 139-160.

- Key Finding: There is a clear consensus in the academic research that prevailing wage laws do not affect construction costs for large public works projects like schools and highways and that they also promote worker safety and training.

Slowey, Kim and Mary Tyler March. (2018). "Financing, Procedures Documents Approved for $2B Las Vegas Raiders Stadium." *Construction Dive*.

- Key Finding: "Mortenson and the Raiders have worked with the Las Vegas Stadium authority, the minority business community and public and private agencies to put together what the team refers to as the best community benefits agreement ever drafted. One provision of the deal requires that minority and female workers perform 38% of construction work hours."

Waitzman, Emma and Peter Philips. (2017). *Project Labor Agreements and Bidding Outcomes: The Case of Community College Construction in California*. University of California, Berkeley; University of Utah.

- Key Finding: A case study of 7 community college buildings constructed between 2008 and 2015 following a bond measure compared 3 completed with PLAs with 4 that were not. The PLA-covered projects were awarded for 25% less than the engineer's estimates while the non-PLA projects were awarded for 21% less.

Census. (2017). *2017 Economic Census*. U.S. Census Bureau.

- Key Finding: According to data from the 2017 *Economic Census* by the U.S. Census Bureau, labor costs account for just 23% of total costs in the U.S. construction industry.
- Calculation: Labor costs are determined by adding construction worker wages and construction workers' share of total fringe benefits (calculated by dividing construction wages by total wages and then multiplying that value, 69.3%, total fringe benefits). Then, this labor cost value ($356.0 billion) is divided by the net value of construction work ($1.574 trillion), or the total value of construction work less the cost of construction work subcontracted out to others, to arrive at the labor cost share of total construction costs for the average contractor (22.6%).

Cahill, Jim. (2016). "In My Opinion: Opposition to Labor Agreement Self-Serving." *Press-Republican*.

- Key Finding: "Every contractor—union or nonunion—has a choice: They can compete for the work by bidding on the job, or they can step aside and complain. Either way, the Project Labor Agreement will ensure the work is completed on-time, on-budget and by a skilled workforce."

Manzo IV, Frank and Robert Bruno. (2015). *Efficiencies of Project Labor Agreements: Illinois Capital Development Board Projects, 2011-2013*. Illinois Economic Policy Institute; University of Illinois at Urbana-Champaign.

- Key Finding: A case study of 317 state building projects completed by the Illinois Capital Development Board under PLAs from 2011 through 2013 found that the average project had a cost overrun rate of 5% but the average winning bid was 5% below the engineer's estimate—which essentially offset one another. While Minority and Women Business Enterprise (MWBE) firms accounted for 12% of pre-qualified firms eligible to bid, they were awarded 13% of the total construction value on projects covered by PLAs.

Wondolowski, David and Matthew Szollosi. (2015). "Project Labor Agreements Make Sense for Everyone." *Cleveland Plain Dealer*.

- Key Finding: "If utilization of project labor agreements artificially increases costs of construction by up to 22%, as Mr. Myers suggested, why do dozens of Ohio's largest and most successful corporations utilize project agreements for their capital improvement projects? Based on his reasoning, corporate leaders for Honda of America Manufacturing, Eaton Corp., Cleveland Clinic, MetroHealth Systems, LTV Steel, University Hospitals, General Motors, British Petroleum, FirstEnergy, American Electric Power, Proctor & Gamble, Ford Motor Co., Key Bank and scores of additional Ohio corporations, all of whom have utilized project labor agreements for specific construction projects, have a lot of explaining to do to their shareholders for unnecessarily wasting money."

Philips, Peter and Scott Littlehale. (2015). *Did PLAs on LA Affordable Housing Projects Raise Construction Costs?* University of Utah.

- Key Finding: A study of 128 affordable housing projects in Los Angeles, California—9 of which were built with PLAs—found that PLA projects were no more expensive than non-PLA projects.

Waddoups, C. Jeffrey and David May. (2014). "Do Responsible Contractor Policies Increase Construction Bid Costs?" *Industrial Relations*, 53(2): 273-294.

- Key Finding: An analysis of 63 school construction projects built in Ohio with responsible contractor policies—which included PLAs and similar high-road market standards such has prevailing wages and participation in registered apprenticeship training programs—against 256 schools built without such policies between 1997 and 2008 found "no discernible statistical impact on construction bid costs."

Waheed, Saba and Lucero Herrera. (2014). *Exploring Targeted Hire: An Assessment of Best Practices in the Construction Industry*. University of California, Los Angeles.

- Key Finding: A PLA "operates as a 'job-site constitution,' establishing safe working conditions and rules, project execution and accountability on the job, and protocols for resolving labor disputes without resorting to strikes and lockouts."

Minnesota Multi-Purpose Stadium (MMPS). (2013). *Project Labor Agreement for Minnesota Multi-Purpose Stadium*. Signed November 22, 2013.

- Key Finding: The US Bank Stadium in Minnesota PLA was signed in November 2013 and the stadium opened in July 2016.

Building and Construction Trades Department (BCTD). (2012). "Are You Ready For Some Football? The NFL Says 'Yes' to Project Labor Agreements, According to The Building and Construction Trades Department." *Cision PR Newswire*.

- Key Finding: Demonstrating the value of PLAs in the private sector, 12 out of 18 National Football League (NFL) stadiums built or renovated between 1998 and 2016 were constructed with PLAs (67%).

Kotler, Fred. (2011). *Project Labor Agreements in New York State II: In the Public Interest and of Proven Value*. Cornell University.

- Key Finding: A follow-up to an earlier report, the author finds that a PLA is a "job site constitution" that is a valuable construction management tool for substantial cost savings, productivity, job stability, timely completion, and quality work. PLAs achieve substantial, direct cost savings by standardizing contract terms among various area craft agreements.
- Earlier report: Kotler, Fred. (2009). *Project Labor Agreements in New York State: In the Public*. Cornell University.

Figueroa, Maria, Jeffrey Grabelsky, and Ryan Lamare. (2011). Community Workforce Provisions in Project Labor Agreements: A Tool for Building Middle-Class Careers. Cornell University.

- Key Finding: Researchers examined 185 PLAs administered by 70 building trade councils from 1995 through 2010 and found that 139 promoted the hiring of veterans (75%), 103 required hiring women and people of color (56%), 100 included specific apprenticeship utilization goals (54%), and 70 set goals for hiring local workers (38%).

Moran, John. (2011). *Pros and Cons of Using Project Labor Agreements*. Office of Legislative Research at the Connecticut General Assembly.

- Key Finding: Proponents of PLAs say that they provide uniform pay, benefits, hours, and working conditions, on major construction projects; provide contractors with a reliable and uninterrupted supply of qualified workers at predictable costs; ensure that a project will be completed on time and on budget; ensure no labor strife by prohibiting strikes and lockouts; make large projects easier to manage by placing unions under one contract; may include provisions to recruit and train workers; reduce misclassification; and improve worker safety.

Hill International. (2011). *Implementation of Project Labor Agreements in Federal Construction Projects: An Evaluation*. Submitted to the U.S. Department of Labor.

- Key Finding: A cost effectiveness study analyzed a PLA used by the New York City School Construction Authority from 2005 to 2009. The report found that the "total of major quantifiable cost savings resulting from utilization of a PLA in construction amount[ed] to $221 million" over five years, with most of the savings accruing from standardizing shift work and shift differentials. Notably, the collective bargaining agreements of all unions involved were renegotiated and, while two unions went on strike during the time of the PLA, construction continued uninterrupted.

Belman, Dale, Russell Ormiston, Richard Kelso, William Schriver, and Kenneth Frank. (2010). "Project Labor Agreements' Effect on School Construction Costs in Massachusetts." *Industrial Relations*, 49(1): 44-60.

- Key Finding: A comparison of 70 elementary through secondary school construction projects built in Massachusetts from 1996 through 2002, including 9 that were covered by PLAs, found no evidence that PLAs affect construction costs. The researchers "collect[ed] information on dozens of characteristics on each school construction project, far more than any other similar study" to that point, and accounted for project size and complexity, project location, and other important factors in their analysis.

Belman, Dale and Matthew Bodah. (2010). *Building Better: A Look at Best Practices for the Design of Project Labor Agreements*. Economic Policy Institute; Michigan State University; University of Rhode Island.

- Key Finding: This report includes a "Project Labor Agreement Item Checklist" to help parties when considering the development of a PLA. If designed properly, PLAs can help project meet deadlines by guaranteeing a steady supply of highly skilled labor through the union referral system, assure timely completion by keeping projects free from labor disruptions, improve efficiency and promote innovation by prohibiting restrictive work norms and improving coordination in work flow, advance training and recruitment of people from disadvantaged communities, improve safety and health on the jobsite through safety committees and drug screening, and prohibit discrimination in bidding.

Mayer, Gerald. (2010). *Project Labor Agreements*. Congressional Research Service.

- Key Finding: "Much of the research on the effect of PLAs on the costs of construction is inconclusive. In part, it can be difficult to find similar projects where some use a PLA and the others do not. Instead of comparing similar projects, economists often use statistical models that attempt to control for differences in the characteristics of the projects."

Obama White House. (2009). "Use of Project Labor Agreements for Federal Construction Projects." White House Archives.

- Key Finding: President Obama "encouraged" PLAs on federal projects worth $25 million or more but did not *require* them.

Belman, Dale, Matthew Bodah, and Peter Philips. (2007). *Project Labor Agreements*. Michigan State University; University of Rhode Island; University of Utah; ELECTRI International.

- Key Finding: The authors gathered detailed information on 108 New England school projects and found that PLAs had no statistically significant effect on school construction costs. Any cost effects "result from the additional amenities or requirements that are inherent in large, complex jobs, which are more likely to be covered by PLAs." Additionally, they compared two school districts in San Jose, California. One district chose to build with PLAs while the other did not. The researchers accessed 164 total projects, including 108 built prior to the PLA going into effect and 56 while it was in place, of which 21 were covered by the PLA. After accounting for other important factors, the PLA had "no statistically significant effect on the number of bidders." Finally, interviews of 40 industry representatives who have experience with PLAs reveal that they believe "the greatest benefit of PLAs was in assuring timely completion of a project." This report includes a "Project Labor Agreement Item Checklist" to help parties when considering the development of a PLA.

Henderson, Mark. (2006). Op Ed on Project Labor Agreements. Originally published in the *Albuquerque Journal*. Available from the New Mexico Building Trades.

- Key Finding: This op-ed originally appeared in the *Albuquerque Journal*, but it (with its original headline) is now unavailable online—except for portions on the New Mexico Building and Construction Trades Council's website. The op-ed was written by a contractor about the benefits of PLAs. Key lines include: "These agreements have proven that they save time and money and are a great service to the public," "[t]he PLA worked because it defined wages and set work rules for the project, so companies like mine knew the entire scope of the project from the start," and "given the shortage of skilled construction workers over the last decade, the PLA ensured there were enough qualified workers for the project."

Bureau of Labor Education (BLE). (2005). *Project Labor Agreements and Construction in Maine*. University of Maine.

- Key Finding: This four-page University of Maine fact sheet answers the following questions: What are PLAs? How do PLAs work? What are the advantages of using PLAs? Can nonunion contractors or subcontractors bid on projects with PLAs? Are PLAs legal in public sector projects? Do PLAs increase labor or project costs? Have PLAs been used in Maine?

Union Construction and Collective Bargaining

Bureau of Labor Statistics (BLS). (2024). *Union Members – 2023*. U.S. Department of Labor.

- Key Finding: In 2023, median weekly wages were $1,424 for union construction workers and $1,007 for nonunion construction workers, a 41% difference. Union membership rates were 16.3% for construction and extraction workers and 10.7% for the construction industry as a whole.

USEER. (2023). *United States Energy & Employment Report 2023*. U.S. Department of Energy.

- Key Finding: According to a survey of 34,200 energy sector employers, union employers have less trouble filling open positions. The union difference "was especially pronounced in the construction industry," where union contractors are 28 percentage points less likely to report that it is "very difficult" to find workers. Union employers (46%) are more than 2x as likely as nonunion employers (22%) to offer diversity and inclusion training programs as well as 2x as likely to have a policy in place to recruit people of color and 2.5x as likely to have a policy in place to recruit members of the LGBTQ+ community.

U.S. Treasury. (2023). *Labor Unions and the Middle Class*. U.S. Department of the Treasury.

- Key Finding: In this first-of-its-kind, comprehensive look at the role of labor unions in the U.S. economy, the U.S. Department of the Treasury finds that workers reap substantial benefits from unionization, with unions raising wages of their members by 10%-15% and improving fringe benefits and workplace procedures such as retirement plans, workplace grievance policies, and predictable scheduling. The report also finds that unionization have spillover effects that extend to nonunion workers, unions reduce racial and gender pay gaps, and unions contribute to economic growth and resilience by reducing inequality and boosting worker productivity. Recommendations and actions to strengthen unions include prioritizing the passage of the Protecting the Right to Organize (PRO) Act and the Public Sector Freedom to Negotiate Act, requiring the use of project labor agreements on federal construction projects, and improving Davis-Bacon prevailing wage rules and expanding prevailing wages and apprenticeships on clean energy projects.

Parolin, Zachary and Tom VanHeuvelen. (2023). "The Cumulative Advantage of a Unionized Career for Lifetime Earnings." *ILR Review*, 76(2): 434–460.

- Key Finding: Analyzing 1969 through 2019 data from the *Panel Study of Income Dynamics*, researchers find that unionization throughout one's career is associated with a $1.3 million increase in average lifetime earnings, larger than the average gains from completing college. These union gains occur despite earlier-than-average retirement ages.

GBAO. (2023). *The State of Labor Unions is Strong*. August 1-8, 2023 survey of 1,200 registered voters commissioned by the AFL-CIO.

- Key Finding: 71% of registered voters approve of labor unions, including 91% Democrats, 69% Independents, and 52% Republicans. 63% Americans say that unions have a positive effect on the U.S. economy, and 8-in-10 registered voters says that unions positively impact workplace safety (82%), worker pay and hours (78%), job security (77%), and the ability to afford and access healthcare (76%).

Saad, Lydia. (2023). "More in U.S. See Unions Strengthening and Want It That Way." *Gallup*.

- Key Finding: 67% of American adults approve of labor unions, including 88% of Democrats, 69% of Independents, and 47% of Republicans. 77% say that unions "mostly help" union members and 61% say they "mostly help" the U.S. economy in general. A record high (44%) want unions to have more influence than they have today, rather than "less influence" (26%) or "the same amount" (30%).

Bureau of Labor Statistics (BLS). (2023). *Employee Benefits in the United States – March 2023*. U.S. Department of Labor.

- Key Finding: 95% of union workers have access to healthcare coverage, 95% have access to retirement plans, and 92% have access to paid sick leave. By contrast, just 71% of nonunion workers have healthcare access, 70% have retirement plan access, and 78% have paid sick leave.

McFadden, Michael, Sal Santosh, and Ronit Shetty. (2022). *Quantifying the Value of Union Labor in Construction Projects*. Independent Project Analysis.

- Key Finding: An analysis of 1,550 industrial and commercial building projects built in the United States between 2000 and 2022 found that union construction labor is 4% more cost-effective. The projects ranged in size from $200,000 to more than $6 billion, with an average size of $89 million. 51% of the projects were nonunion, 25% were union, and 24% employed a mix. The researchers found that union workers are 14% more productive than nonunion workers, worker turnover is 33% less likely to occur when union labor is employed, and projects are 40% less likely to experience a shortage of skilled workers when union labor is sourced. The authors conclude that "union labor creates significant value for owners through lower costs and more predictable schedules," reducing overall project costs by 4%.

Manzo IV, Frank, Larissa Petrucci, and Robert Bruno. (2022). *The Union Advantage During the Construction Labor Shortage: Evidence from Surveys of Associated General Contractors of America Member Firms*. Illinois Economic Policy Institute; University of Illinois at Urbana-Champaign.

- Key Finding: An analysis of 2018 through 2021 survey data from the Associated General Contractors of America (AGC), including responses from 1,768 union contractors and 3,893 nonunion contractors, found that the skilled labor shortage is much less severe in the union segment of the industry. Union contractors are 21 percentage points less likely to experience delays in project completion times *due* to shortages of workers, 27 percentage points less likely to report that their local pipeline for supplying well-trained craft workers is "poor," and 13 percentage points less likely to be losing their workers to other industries.

McCarthy, Justin. (2022). "U.S. Approval of Labor Unions at Highest Point Since 1965." *Gallup*.

- Key Finding: 71% of American adults approve of labor unions, the highest level in six decades. Support is widespread and bipartisan, including 89% of Democrats, 68% of Independents, and 56% of Republicans.

Farber, Henry, Daniel Herbst, Ilyana Kuziemko, and Suresh Naidu. (2021). "*Unions and Inequality Over the Twentieth Century: New Evidence from Survey Data*." *The Quarterly Journal of Economics*, 136(3): 1,325-1,385.

- Key Finding: Using microdata on union membership dating back to 1936, including survey data primarily from Gallup with a total sample of nearly 980,000, researchers found that union households have earned an average of 10% to 20% more than nonunion households every year since the 1930s.

Manzo IV, Frank and Erik Thorson. (2021). *Union Apprenticeships: The Bachelor's Degrees of the Construction Industry – Data for the United States, 2010-2020*. Illinois Economic Policy Institute.

- Key Finding: An analysis of 2010-2020 data from the *Current Population Survey Annual Social and Economic Supplement* (ASEC) found that union construction workers earned $58,000 per year on average, 46% more than nonunion construction workers. 89% of union construction workers have private health insurance coverage, 34 percentage points higher than nonunion construction workers. 4% of union construction workers are in poverty and 4% rely on Medicaid, both 6 percentage points lower than nonunion construction workers. And union construction workers contribute 68% more in federal income taxes, 49% more in payroll taxes, and 61% more in state income taxes than nonunion construction workers.

Manzo IV, Frank, Nathaniel Goodell, and Robert Bruno. (2021). *The Impact of Unions on Construction Worksite Health and Safety: Evidence from OSHA Inspections*. Illinois Economic Policy Institute; University of Illinois at Urbana-Champaign.

- Key Finding: An analysis of more than 37,000 Occupational Safety and Health Administration (OSHA) inspections in the construction industry in 2019 found that union worksites have 34% fewer violations per inspection and union worksites are less likely to have an OSHA violation in the 8 major construction sectors.

Manzo IV, Frank, Jill Gigstad, Robert Bruno, and Kevin Duncan. (2021). *Building a Strong Minnesota: An Analysis of Minnesota's Union Construction Industry*. Midwest Economic Policy Institute; University of Illinois at Urbana-Champaign; Colorado State University-Pueblo.

- Key Finding: An analysis of 668 subcontractor low bids submitted to construction managers for school construction project tasks in the Minneapolis-St. Paul, Minnesota metropolitan area—including 477 projects awarded to union contractors (71%) and 191 projects awarded to nonunion contractors (29%)—found that the bids of winning union contractors were not more expensive than the bids of nonunion contractors, after taking the type of work into consideration.

Glass, Aurelia, David Madland, and Christian Weller. (2021). *Unions Help Increase Wealth for All and Close Racial Wealth Gaps*. Center for American Progress.

- Key Finding: Union households have an 8 percentage point higher homeownership rate (74%) than nonunion households (66%). Unions are also 32 percentage points more likely to have a pension (53% vs. 21%) and 17 percentage points more likely to have a 401(k)-style retirement plan (63% vs. 46%). Overall, the analysis of 2010-2019 Survey of Consumer Finances data found that the median union household has a wealth of just over $270,000, more than twice as much as the median nonunion household ($120,000).

Juravich, Tom, Russell Ormiston, and Dale Belman. (2021). *The Social and Economic Costs of Illegal Misclassification, Wage Theft and Tax Fraud in Residential Construction in Massachusetts*." University of Massachusetts Amherst; Allegheny College; Michigan State University.

- Key Finding: Employer payroll audits between 2017 and 2019 indicate that 17%-18% of Massachusetts construction employers misclassify workers as independent contractors. Illegal misclassification, wage theft, and paying workers in cash affects 9%-16% of the industry's workforce. Researchers found higher rates of misclassification among building finishing, siding, framing, carpentry, painting, drywall, flooring, and roofing contractors, which are primarily in residential construction. The data reveal that misclassification, wage theft, and payroll fraud are rampant in the residential sector, which calls into question studies suggesting that project labor agreements (PLAs) and prevailing wage laws increase total costs in the industry—because these labor standards require above-board, legal wages and tax payments. This means that some, if not all, of the higher costs reported in these studies are simply because they bring a large underground black market into the law-abiding, competitive construction market.

Duncan, Kevin and Jeffrey Waddoups. (2020). "Unintended Consequences of Nevada's Ninety-Percent Prevailing Wage Rule." *Labor Studies Journal*, 45(2): 166-185.

- Key Finding: A 2020 study of nearly 291 bids on 81 school construction projects in Nevada found that union contractors were no more expensive than nonunion contractors.

Wang, Angela and Skye Gould. (2019). "Americans Have a Very Favorable View of Almost All Labor Unions." *Business Insider*.

- Key Finding: A survey of 1,165 Americans in August 2019 found that unions for nurses, teachers, blue collar workers, manufacturing workers, and construction workers had the highest net favorability ratings, while "identity-exclusive," actor/writer/TV/film, and freelancers unions had the lowest net favorability ratings.

Sojourner, Aaron and Jose Pacas. (2018). *The Relationship between Union Membership and Net Fiscal Impact*. University of Minnesota; Institute of Labor Economics.

- Key Finding: Because they earn higher incomes, union members contribute more in taxes and are less likely to rely on government assistance programs like Supplemental Nutrition Assistance Program (SNAP) food stamps, the Earned Income Tax Credit (EITC), and Medicaid. Between 1994 and 2015, union membership raised a worker's annual income by $4,662 per year. With higher incomes, union members contributed $1,109 more in taxes and received $181 less in government benefits than nonunion workers, for a "net fiscal impact" of +$1,290 per year. Unions improve public budgets.

Zoorob, Michael. (2018). "Does 'Right to Work' Imperil the Right to Health? The Effect of Labour Unions on Workplace Fatalities." *Occupational and Environmental Medicine*, 75(10): 736-738.

- Key Finding: A 1% increase in unionization was associated with a 3% decline in the rate of occupational fatalities over the 25-year period from 1992 to 2016, after controlling for other variables. By weakening unions, so-called "right-to-work" legislation has been associated with about a 14% increase in the rate of occupational fatalities.

Bivens, Josh, Lora Engdahl, Elise Gould, Teresa Kroeger, Celine McNicholas, Lawrence Mishel, Zane Mokhiber, Heidi Shierholz, Marni von Wilpert, Valerie Wilson, and Ben Zipperer. (2017). *How Today's Unions Help Working People: Giving Workers the Power to Improve Their Jobs and Unrig the Economy*. Economic Policy Institute.

- Key Finding: On average, a worker covered by a union contract earns 13% more in wages than a peer with similar education, occupation, and experience in a nonunionized workplace in the same sector. Union construction sites are safer for workers. In 2014, OSHA inspected New York state construction sites and found twice as many health and safety violations at nonunion construction sites as at union construction sites.

Atalah, Alan. (2013). "Comparison of Union and Nonunion Bids on Ohio School Facilities Commission Construction Projects." *International Journal of Economics and Management Engineering*, 3(1): 29-35.

- Key Finding: An examination of 8,093 bids on 1,496 school construction projects in Ohio compared bids of construction companies that contractually pay union-scale wages to those submitted by nonunion contractors and found no difference in average bid costs per square foot.

Atalah, Alan. (2013). "Impact of Prevailing Wages on the Cost among the Various Construction Trades," *Journal of Civil Engineering and Architecture*, 7(4): 670-676.

- Key Finding: An examination of 8,093 bids on 1,496 school construction projects in Ohio explored bids submitted by different trades and found that the average bid cost per square foot was not higher for 15 of the 18 trades (83%) that paid union-scale wages.

Long, George. (2013). *Differences Between Union and Nonunion Compensation, 2001-2011*. Bureau of Labor Statistics at the U.S. Department of Labor.

- Key Finding: Union workers continue to receive higher wages than nonunion workers and have greater access to most employer-sponsored employee benefits.

Kim, Jaewhan; Chang Kuo-Liang; and Peter Philips. (2012). "The Effect of Prevailing Wage Regulations on Contractor Bid Participation and Behavior: A Comparison of Palo Alto, California with Four Nearby Prevailing Wage Municipalities." *Industrial Relations*, 51(4): 874-891.

- Key Finding: This sample of 565 bids on 140 municipal projects in the San Francisco Bay area does not find a difference in union and nonunion bid prices relative to the engineer's estimate of the value of the project.

Zullo, Roland. (2011). "Right-to-Work Laws and Fatalities in Construction." *WorkingUSA*, 14(2): 225-234.

- Key Finding: Using data from 2001 through 2009, the author finds that states with low construction union densities have a fatality rate that is higher by between 3 deaths and 7 deaths per 1,000 construction workers compared to states with high construction union densities. So-called "right-to-work" laws result in the underfunding of union safety training or accident prevention programs.

Schmitt, John. (2008). *The Union Wage Advantage for Low-Wage Workers*. Center for Economic and Policy Research.

- Key Finding: Using national data from 2003 through 2007, researchers found unionization raises the wages of low-wage workers (bottom 10th percentile) by 21%, of middle-class workers (median or 50th percentile) by 14%, and of high-wage workers (top 10th percentile) by 6%.

Walters, Matthew and Lawrence Mishel. (2003). *How Unions Help All Workers*. Economic Policy Institute.

- Key Finding: Unions raise wages of unionized workers by roughly 20% and raise compensation, including both wages and benefits, by about 28%. Unionized workers receive more generous health benefits and pay 18% lower health care deductibles and a smaller share of the costs for family coverage. In retirement, unionized workers are 24% more likely to be covered by health insurance paid for by their employer.

Allen, Steven. (1986). "Unionization and Productivity in Office Building and Elementary and Secondary Schools*." Industrial and Labor Relations Review*, 39(2): 187-201.

- Key Finding: A comparison of the performance of union and nonunion contractors across 83 office buildings and 68 schools found that union productivity was at least 30% higher for office projects and 0%-20% higher on school projects after accounting for differences in capital-labor ratios, labor quality, region, and building characteristics.

Allen, Steven. (1984). "Unionized Construction Workers are More Productive." *The Quarterly Journal of Economics,* 99(2): 251-274.

- Key Finding: By value added per employee, union construction workers are 17%-22% more productive than nonunion construction workers after accounting for interarea construction price differences.

Apprenticeship Training

Bilginsoy, Cihan and Russell Ormiston. (2024). *The State of Registered Apprenticeship Training in the Construction Trades*. Institute for Construction Employment Research; University of Utah; Allegheny College.

- Key Finding: Joint labor-management apprenticeship programs (union programs) accounted for 68% of all construction apprentices across the United States from 2015 through 2021.

Manzo IV, Frank, Andrew Wilson, and Robert Bruno. (2023). *Construction Apprenticeships as a Career Development Alternative in Indiana: Enrollment, Diversity, Hours, Completion Rates, and Earnings in Registered Apprenticeship Programs*. Midwest Economic Policy Institute; University of Illinois at Urbana-Champaign.

- Key Finding: Joint labor-management apprenticeship programs (union programs) enrolled 77% of construction apprentices in Indiana between 2010 and 2020, including 93% of women apprentices, 85% of Black apprentices, and 83% of Hispanic apprentices. Joint programs have a 6% higher completion rate than employer-only (nonunion) programs, require 30% more hours of training than bachelor's degrees, and deliver hourly earnings that are 5% higher than the average worker with a bachelor's degree without any student loan debt.

Manzo IV, Frank, Andrew Wilson, and Robert Bruno. (2023). *Construction Apprenticeships as a Career Development Alternative in Michigan: Enrollment, Diversity, Hours, Completion Rates, and Earnings in Registered Apprenticeship Programs*. Midwest Economic Policy Institute; University of Illinois at Urbana-Champaign.

- Key Finding: Joint labor-management apprenticeship programs (union programs) enrolled 75% of construction apprentices in Michigan between 2010 and 2020, including 87% of women apprentices, 87% of Black apprentices, and 85% of Hispanic apprentices. Joint programs have a 15% higher completion rate than employer-only (nonunion) programs, require 8% more hours of training than bachelor's degrees, and deliver hourly earnings that are only 8% less than the average worker with a bachelor's degree without any student loan debt.

Bilginsoy, Cihan, David Bullock, Amy Tracy Wells, and Roland Zullo. (2022). *Diversity, Equity, and Inclusion Initiatives in the Construction Trades*. Institute for Construction Employment Research; University of Utah; University of Michigan; Rutgers University.

- Key Finding: Joint labor-management apprenticeship programs (union programs) accounted for 75% of all construction apprentices across the United States from 1999 to 2019, including 85% of women apprentices, 79% of Black apprentices, and 79% of Hispanic apprentices. Cancellation rates—or dropout rates—are 10% lower for joint programs. Joint programs have lower dropout rates across the board, regardless of race or gender.

Belman, Dale. (2022). *Registered Apprenticeship in Construction: Built to Last?* Institute for Construction Employment Research; Michigan State University.

- Key Finding: Joint labor-management registered apprenticeship programs provide comprehensive classroom and on-the-job training to apprentices over 3-to-5-year periods. Except for electricians (55%) and the mechanical trades (36%), joint programs enrolled between 86% (laborer) and 96% (structural iron) of all construction apprentices between 2016 and 2020 in the 37 states that participated in RAPIDS data. The higher non-joint share in electrical and mechanical trades reflects the training required to meet state and municipal licensing requirements. Completion rates are 44% for joint programs and 33% for non-joint programs, an 11% difference.

Wuellner, Sara and David Bonauto. (2022). "Are Plumbing Apprentice Graduates Safer than Their Non-Apprentice Peers? Workers' Compensation Claims Among Journey Level Plumbers by Apprenticeship Participation." *Journal of Safety Research*, 83: 349-356.

- Key Finding: Washington State Department of Labor & Industries researchers linked apprenticeship data with plumber certification information, compared workers' compensation claims between 2000 and 2018, and found that journey-level plumbers who graduated from apprenticeship programs had workers' compensation claim rates that were 31% lower than plumbers with no apprenticeship training.

Petrucci, Larissa. (2021). *Constructing a Diverse Workforce: Examining Union and Non-union Construction Apprenticeship Programs and their Outcomes for Women and Workers of Color*. University of Oregon.

- Key Finding: In Portland, joint labor-management apprenticeship programs enroll 72% of all construction apprentices. The joint programs have greater gender and racial diversity and a graduation rate of 58% versus a 36% graduation rate in employer-only programs, a 22 percentage-point difference. About half of all women apprentices and apprentices of color earned an exit wage of at least $40 per hour from the joint programs compared to just one-in-five earning at least $40 per hour from the employer-only programs.

Stepick, Lina and Frank Manzo IV. (2021). *The Impact of Oregon's Prevailing Wage Rate Law: Effects on Costs, Training, and Economic Development*. University of Oregon; Illinois Economic Policy Institute.

- Key Finding: Joint labor-management apprenticeship programs (union programs) enrolled 63% of new construction apprentices in Oregon in 2018, including 76% of new women apprentices, 59% of new Black apprentices, and 72% of new Latinx apprentices. Joint programs require 30% more hours of training than bachelor's degrees in Oregon.

Manzo IV, Nathaniel Goodell, and Robert Bruno. (2021). *Apprenticeship as a Career Development Alternative: Enrollment, Hours, and Earnings in Registered Apprenticeship Programs in Wisconsin*. Midwest Economic Policy Institute; University of Illinois at Urbana-Champaign.

- Key Finding: Joint labor-management programs account for 81% of all construction apprentices in Wisconsin, including 85% of all women, 89% of all Black apprentices, 86% of all Hispanic apprentices, and 85% of all military veterans. The joint programs account for 95% of all training investments. Registered apprenticeship programs require 41% more training hours than bachelor's degree students and deliver earnings that are on par with workers with bachelor's degrees.

Manzo IV, Frank and Jill Gigstad. (2021). *Apprenticeship Training in Iowa: Enrollment, Completion Rates, and Earnings of Registered Apprentices in Iowa*. Midwest Economic Policy Institute.

- Key Finding: Iowa is a so-called "right-to-work" state. Joint labor-management apprenticeship programs account for 55% of all construction apprentices in Iowa, including 70% of all women, 68% of all Black apprentices, 63% of all Hispanic apprentices, and 61% of all veterans. The joint programs require 30% more hours of training than bachelor's degrees and deliver earnings that are most similar to similar to workers with associate degrees.

Manzo IV, Frank and Robert Bruno. (2020). *The Apprenticeship Alternative: Enrollment, Completion Rates, and Earnings in Registered Apprenticeship Programs in Illinois*. Illinois Economic Policy Institute; University of Illinois at Urbana-Champaign.

- Key Finding: Joint labor-management programs account for the vast majority of registered apprentices (97%) in Illinois' construction industry, require 27% more hours of training that four-year universities, have a 54% completion rate that is on par with public universities (61%), are more diverse than employer-only programs, and deliver good middle-class careers with career earnings ($2.4 million) that rival bachelor's degrees ($2.5 million).

Calamuci, Dan. (2020). *Training the Golden State: An Analysis of California Apprenticeship Programs*. Smart Cities Prevail.

- Key Finding: Joint labor-management apprenticeship programs train 92% of California's construction apprentices, including 97% of the female apprentices. Two-thirds of California apprentices are people of color. Apprenticeship programs require the same or more training hours than a bachelor's degree.

Waddoups, Jeffrey and Kevin Duncan. (2019). *The Impact of Nevada's Ninety-Percent Prevailing Wage Policy on School Construction Costs, Bid Competition, and Apprenticeship Training*. University of Nevada, Las Vegas; Colorado State University-Pueblo.

- Key Finding: Joint labor-management apprenticeship programs trained 92% of Nevada's construction apprentices between 2000 and 2017. Joint programs had a completion rate that was 7 percentage-points higher than employer-only programs.

Herzenberg, Stephen, Diana Polson, and Mark Price. (2018). *Construction Apprenticeship and Training in Pennsylvania*. Keystone Research Center.

- Key Finding: Joint labor-management apprenticeship programs account for 85% of Pennsylvania's construction apprentices and 9-in-10 apprentices who are people of color and women. Starting wages for union apprentices are 36% higher than their nonunion counterparts.

Manzo IV, Frank and Kevin Duncan. (2018). *An Examination of Minnesota's Prevailing Wage Law: Effects on Costs, Training, and Economic Development*. Midwest Economic Policy Institute; Colorado State University-Pueblo.

- Key Finding: 93% of all registered apprentices in Minnesota are enrolled in joint labor-management programs.

Bilginsoy, Cihan. (2017). *The Performance of ABC-Sponsored Registered Apprenticeship Programs in Michigan: 2000-2016*. University of Utah.

- Key Finding: Joint labor-management programs account for 79% of all new registered apprentices in Michigan, ABC-sponsored programs account for 4%, and other single-employer programs account for 16%. The ABC programs had the highest rate of cancellation and the lowest completion rate. The share of people of color was 9% in the ABC-affiliated programs and 21% in the joint programs, matching their share in the Michigan labor force (20%).

Onsarigo, Lameck, Alan Atalah, Frank Manzo IV, and Kevin Duncan. (2017). *The Economic, Fiscal, and Social Effects of Ohio's Prevailing Wage Law*. Kent State University; Bowling Green State University; Illinois Economic Policy Institute; Colorado State University-Pueblo.

- Key Finding: Between 2004 and 2015, 79% of Ohio's construction apprentices were enrolled in union training programs, which had a completion rate that is 21 percentage-points higher than nonunion programs. As a result, 83% of apprentices graduated from union programs. Union programs also enrolled 88% of nonwhite apprentices and 94% of female apprentices.

Duncan, Kevin and Frank Manzo IV. (2016). *The Economic, Fiscal, and Social Effects of Kentucky's Prevailing Wage Law*. Colorado State University-Pueblo; Midwest Economic Policy Institute.

- Key Finding: Between 2008 and 2016, 80% of Kentucky's construction apprentices were enrolled in union training programs, which had a completion rate that is 35 percentage-points higher than nonunion programs. Union training programs had higher share of female, veteran, and Black completers than nonunion programs as well.

Manzo IV, Frank and Robert Bruno. (2016). *The Impact of Apprenticeship Programs in Illinois: An Analysis of Economic and Social Effects*. Illinois Economic Policy Institute; University of Illinois at Urbana-Champaign.

- Key Finding: 98% of construction apprentices in Illinois are enrolled in joint labor-management apprenticeship programs in Illinois. Apprenticeship programs in Illinois create nearly 5,000 jobs annually and boost the economy by more than $1.2 billion in the long run. Over a career, the total economic and social return on investment from apprenticeship programs is $11 per dollar invested in worker training.

Philips, Peter. (2015). *Wisconsin's Prevailing-Wage Law: An Economic Impact Analysis*. University of Utah.

- Key Finding: In Wisconsin, union contractors provide 95% of annual apprenticeship expenditures and enroll 82% of all active apprentices.

Olinsky, Ben and Sarah Ayres. (2013). *Training for Success: A Policy to Expand Apprenticeships in the United States*. Center for American Progress.

- Key Finding: The correlation coefficient between active apprenticeship programs and union membership rates is 0.87.

Reed, Debbie, Albert Yung-Hsu Liu, Rebecca Kleinman, Annalisa Mastri, Davin Reed, Samina Sattar, and Jessica Ziegler. (2012). *An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States*. Mathematica Policy Research. Submitted to the U.S. Department of Labor Employment and Training Administration (DOLETA).

- Key Finding: In the United States, participants in registered apprenticeship programs have been found to earn about $124,000 more in wages and fringe benefits over their careers than similar non-participants. Participants also have reduced use of unemployment insurance, welfare, and food stamps.

Bilginsoy, Cihan. (2005). *Registered Apprentices and Apprenticeship Programs in the U.S. Construction Industry Between 1989 and 2003: An Examination of the AIMS, RAIS, and California Apprenticeship Agency Databases*. University of Utah.

- Key Finding: 73% of apprentice registrations were in joint labor-management programs between 1989 and 2003. Compared to employer-only programs, the Black share of enrollment was higher in joint programs in 15 out of 15 years (100%), the Hispanic share of enrollment was higher in joint programs in 12 out of 15 years (80%), and women's share of enrollment was higher in joint programs in 15 out of 15 years (100%). Completion rates were 14 percentage points to 26 percentage points higher in joint programs.

Flawed Studies on PLAs

Burke, William and David Tuerck. (2020). *The Effects of Project Labor Agreements on Public School Construction in Connecticut*. Beacon Hill Institute.

- Key Finding: An analysis of 95 public school projects in Connecticut claims that PLAs increase total costs by 20%, but it does not account for project size and complexity and does not account for whether the project was completed in an urban area.

Burke, William and David Tuerck. (2019). *The Effects of Project Labor Agreements on Public School Construction in New Jersey*. Beacon Hill Institute.

- Key Finding: An analysis of 107 public school projects in New Jersey claims that PLAs increase total costs by 16%, but it does not account for project size and complexity and does not account for whether the project was completed in an urban area.

Bachman, Paul, William Burke, and David Tuerck. (2019). *The Anticompetitive Effects of Government Mandated Project Labor Agreements on Construction in Washington State*. Washington Policy Center.

- Key Finding: An analysis of 511 bids on 125 public works projects in Washington State claims that PLAs reduce the number of bidders by 0.8 per project. However, the authors include municipal, county, state, and federal infrastructure projects awarded by five different agencies but failed to account for either the awarding agency (e.g., the Washington State Department of Transportation, City of Seattle, etc.) or the level of government (e.g., city, state, federal, etc.). They also failed to account for project location, project type, or project size and complexity (e.g., through an engineer's estimate). These are major shortcomings.

Bachman, Paul and David Tuerck. (2017). *Project Labor Agreements and the Cost of School Construction in Ohio*. Beacon Hill Institute.

- Key Finding: An analysis of 88 public school projects in Ohio claims that PLAs increase total costs by 13%, but it does not account for project size and complexity and does not account for whether the project was completed in an urban area.

Vasquez, Vince, Dale Glazer, and W. Erik Bruvold. (2011). "Measuring the Cost of Project Labor Agreements on School Construction in California." National University System Institute for Policy Research.

- Key Finding: A simple model suggests that PLAs increase school construction costs in California by 13%-15, but the inclusion of a variable accounting for construction within the Los Angeles Unified School District caused the PLA effect to lose statistical significance—indicating that PLAs actually have no discernible effect on costs.

New Jersey Department of Labor and Workforce Development (NJLWD). (2010). *Use of Project Labor Agreements in Public Works Building Projects in Fiscal Year 2008*.

- Key Finding: A regression analysis suggests that PLAs increase school construction costs by 7% (relative to the constant term) to 21% (relative to the mean), but the statistical model was overly simplistic and only accounted for the size of the school, whether it was an elementary school, and whether it was built in the northern or southern portion of the state but not whether it was in an urban or rural area.

Bachman, Paul and Jonathan Haughton. (2007). "Do Project Labor Agreements Raise Construction Costs?" *Case Studies in Business, Industry and Government Statistics*, 1(1): 71-79.

- Key Finding: This is the only peer-reviewed study to claim that PLAs have a cost effect. It looked at 126 school construction projects in Massachusetts between 1995 and 2003 and estimated that PLAs increased construction costs by 9%-15%. Its results have been called into question because it fails to account for project size and complexity and does not account for whether the project was completed in an urban area.

Bachman, Paul and David Tuerck. (2006). *Project Labor Agreements and Public Construction Costs in New York State*. Beacon Hill Institute.

- Key Finding: An analysis of 117 public school projects in New York claims that PLAs increase total costs by 20%, but it does not account for project size and complexity and does not account for whether the project was completed in an urban area.

Bachman, Paul, Jonathan Haughton, and David Tuerck. (2004). *Project Labor Agreements and the Cost of Public School Construction in Connecticut*. Beacon Hill Institute.

- Key Finding: An analysis of 71 public school projects in Connecticut claims that PLAs increase total costs by 18%, but it does not account for project size and complexity and does not account for whether the project was completed in an urban area.