Ohio River Valley Institute
Appalachian Citizens' Law Center
ReImagine Appalachia

Discussion Brief
Workforce Matters and Abandoned Mine Cleanup (AML) in the IIJA

Historically, implementation of the AML program has not prioritized workforce impacts. As the Department of the Interior (DOI) begins implementation of the new AML funds under the Infrastructure Investment and Jobs Act (IIJA) and as President Biden has explicitly prioritized union jobs and family-sustaining pay, the time has come for a shift in the AML program to include the AML workforce as a key stakeholder in implementation and to prioritize job quality and other workforce components as core to the program. This is of particular importance as the shift in America's energy use has resulted in massive job loss in many communities with AML sites and left local economies struggling.

We recommend that DOI prioritize the following overarching goals with respect to AML workforce matters: increase the share of AML construction done by union workers, attract more contractors to help meet increased demand for AML construction services, grow a qualified AML reclamation workforce, pay family-sustaining wages to AML construction workers, and decrease AML construction costs and time. This document provides recommendations regarding how DOI can pursue these goals under the IIJA and in forthcoming guidance.

Summary
Union density among AML projects is low. In general, the largest barrier to increasing union labor on AML projects is that AML contracts are currently much too small (by dollar value) to attract union contractors. This could be addressed by prioritizing more large AML projects and by bundling smaller AML projects, which is both explicitly encouraged in the IIJA and successfully utilized by Departments of Transportation across the country. Awarding a range of differently sized contracts could maximize the number of contractors interested in/capable of bidding and executing contracts, by attracting union contractors to larger projects and continuing to provide some work to smaller contractors who have historically done AML construction. This could potentially be achieved by creating tiers of contract sizes, setting targets for each tier, and altering those targets over time as the workforce for AML projects evolves.

As larger AML contracts are pursued, DOI should attach criteria to large projects–such as requiring Responsible Bidder criteria and apprenticeship utilization–that will help increase union density, grow a skilled AML reclamation workforce by expanding apprenticeship programs in impacted areas, and ensure AML construction workers are paid family-sustaining wages. These measures can also increase the quality of reclamation by providing a stable workforce with high craftsmanship, and lower risk by ensuring irresponsible contractors are not awarded federal money.

DOI should convene a working group around the AML reclamation workforce, which could further support DOI's prioritization of labor issues and call attention to these matters for state and tribal AML agencies. The group could serve as a vehicle for sharing models and best practices, relevant data and monitoring efforts, and otherwise assist in the workforce-related goals of the AML program. AML workforce issues vary by state, and the working group could inform implementation in the context of different regions. The increase in AML funds and focus on labor issues also call for hiring staff at DOI focused on workforce matters.

Historically, state and tribal AML agencies have focused on the Priority 1-3 hazardous ranking system in determining which AML projects to prioritize for cleanup. If agencies are now asked to consider goals such as increasing contract size, then DOI will need to provide explicit regulatory flexibility to include additional considerations–such as prioritizing more large projects and bundling AML projects–alongside the Priority ranking system. Similarly, as agencies pursue larger contracts, DOI should take steps to provide state and tribal AML agencies the flexibility to add additional criteria (Responsible Bidder criteria, apprenticeship utilization, etc.) on large projects alongside the low-bid procurement method that many of the agencies currently use.

1. **In order to increase the share of reclamation completed by union labor, attract more contractors, and lower reclamation costs and time, DOI should encourage state/tribal agencies to *bundle* more AML projects–by similar problem type and geography–into larger contracts (at least $1 million).**

The vast majority of AML contracts are currently too small to attract the business of union contractors, according to recent conversations with unions and union contractors in the Ohio River Valley. Using a significant share of a state or tribe's AML budget on bundled contracts could help attract bids from union contractors. Circumstances and market conditions vary by state and region, impacting what union contractors consider large enough to be worth bidding on, but a threshold of at least $1 million appears to be a lower bound in terms of attracting union contractors. Union contractors in more competitive markets, such as southwest Pennsylvania, may need contracts upwards of $3 to $10 million in order to be attracted to bid.

According to Ohio River Valley Institute and Appalachian Citizens' Law Center, AML contracts in Kentucky ranged from $750 to $1.6 million (median: $46,000; average: $130,000) in 2020-2021. AML contracts in Pennsylvania ranged from $38,000 to $26 million (median: $390,000; average: $1.6 million) in 2019-2021. Despite variation across states, most AML contracts as they are currently procured are much too small to garner the interest of union contractors.

Bundling similar construction projects in a similar geographic area is a common practice among transportation agencies across the country, and is promoted by the US Department of Transportation as a proven cost- and time-savings tool. OSMRE could create a set of tiers of different contract sizes (for ex. 0 to $1 million; above $1 million; above $3 million; above $10 million). The agency could then monitor the distribution of contracts across those tiers, set targets for the number of contracts in each tier, and encourage or incentivize states and tribes to increase the number of contracts in the higher tiers through bundling smaller projects and prioritizing more large projects (see recommendation 2). This could help increase contracts awarded to union contractors while continuing to provide work for smaller contractors who have historically done AML construction. Implementation of the policy could be sequenced, increasing targets for different tiers over time. Appendix 1 provides lessons from highway bundling in Indiana and Pennsylvania and some considerations for bundling AML projects.

Justification: the AML section in the IIJA explicitly authorizes states and tribes to "aggregate bids into larger statewide or regional contracts." Policy guidance around monitoring and encouraging contract bundling could enable DOI to fulfill this part of the law.

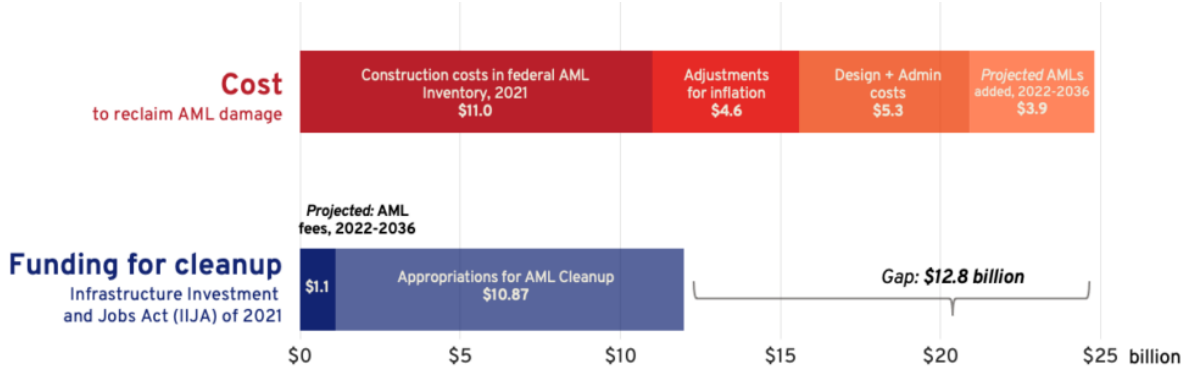
Goal A: increase share of AML reclamation completed by union labor. Though it is difficult to ascertain the specific degree of union density among AML contractors nationwide, there is reason to believe it is lower than the construction industry on average. Only a handful of contracts in Pennsylvania in 2019-21, for example, were awarded to union contractors, and the rate is likely lower or perhaps even zero in states like Kentucky. The exception is in Illinois, where a state law requires many AML contracts be secured through Project Labor Agreements. By bundling and increasing contract size, union contractors are more likely to bid on AML contracts.

Goal B: attract more contractors to help meet increased demand for AML construction services. With IIJA investments, total AML grants to states and tribes in 2022 will increase by 271% on average relative to 2021 [the annual percent increase ranges from 22% (Wyoming) to 781% (Illinois)]. Given the drastic increase in the demand for AML construction services, increased supply is necessary. Raising the dollar value of AML contracts through

bundling will help attract contractors that are not interested in most AML contracts at their current size. Bunding will also require fewer contractors overall because multiple projects can be addressed with one contract.

Goal C: lower AML construction costs. The IIJA represents the largest investment in mine cleanup ever, but it is still unlikely to address all remaining AML damage. According to an estimate by the Ohio River Valley Institute, the IIJA investments will address half of the approximately $25 billion in remaining damage. So, in spite of the large increase in funding, there remains a need to keep reclamation costs low in order to clean up the most damage possible with limited funding– especially given that reclamation costs likely increase over time as sites deteriorate.

Figure 1. IIJA AML investments compared to projected AML costs



Bundling contracts to include multiple AML projects of the same problem type in a similar geographic area could achieve cost savings through economies of scale, as has been achieved by other agencies. For example, the Pennsylvania Department of Transportation bundled the rebuilding, replacement, or removal of 67 county-owned structures in five geographic districts for $33 million, saving up to 50% on design and up to 15% on construction. By bundling 2-3 bridges per contract, the Ohio Department of Transportation was able to complete 210 bridges with a $110 million budget, 10 more bridges than expected (some cost savings may have been realized by bundling 100 or more of the bridges together for financing).

According to a forthcoming Ohio River Valley Institute analysis of well plugging contracts procured by the Pennsylvania Department of Environmental Protection (DEP) over the last six years, the average cost of plugging a well was 84% lower when bundling 6 or 7 wells per contract (average cost per well for contracts with 6-7 wells per contract was $21,337; average cost per well for contracts with 1 well per contract was $137,460; this analysis does not account for variations in well characteristics, which could impact costs).

Goal D: decrease construction time, and time AML officials spend preparing and administering projects. Bundling projects would also increase the speed at which projects could be completed by decreasing both construction time and design/administration time per project. Departments of Transportation across the country report time savings through bundling programs, as well as multiple cases where projects were finished ahead of schedule. Increasing the speed of AML projects could also help address long-time concerns among many AML agencies that the expenditure window for AML funds is too short.

OSMRE and state and tribal agencies will be asked in 2022 to administer 271% more AML funding than in 2021. By only administering one contract for multiple projects, bundling could achieve time savings among state and federal AML officials administering many more projects. By designing and permitting multiple like-projects in succession,

bundling could decrease the time that designers and environmental scientists at AML agencies spend per project. In addition to enabling AML officials the ability to do their jobs more effectively, time savings would also put downward pressure on AML administration and design costs, which have historically been around 25% of total AML reclamation costs according to OSMRE's DOI Financial Business Management System (FBMS).

2. In order to increase the share of reclamation completed by union labor and attract more contractors, DOI should encourage state and tribal agencies to prioritize more large AML projects (at least $1 million).

Historically, limited budgets have forced AML agencies to forego many large (by dollar value) AML projects. The federal AML inventory currently includes more than 1,600 projects with estimated construction costs of $1 million or more and nearly 100 projects with construction costs of $10 million or more (figure 2; cost estimates do not include inflation adjustments). With the 271% increase in AML funding, agencies now have the funds to pursue more large projects. OSMRE should encourage more large projects, and could do so by utilizing a tiered system described in the bundling section above.

Figure 2. Number of unreclaimed AML projects by construction cost
Source: Federal AML inventory (eAMLIS, 3.11.22)

Unfunded construction cost (not inflation-adjusted)	**Number of projects**
> $0	21,730
$100,000 or less	14,754
$1 million *or less*	20,115
$1 million *or more*	1,615
$3 million or more	458
$5 million or more	246
$10 million or more	90

Justification: state and tribal AML programs have the authority, per OSMRE approval, to prioritize the set of the AML projects to pursue with their IIJA AML grants, assuming projects are eligible under the IIJA and SMCRA.

Prioritizing more large projects shares benefits with bundling – see above for discussion of these benefits.
Goal A: increase share of AML reclamation completed by union labor.
Goal B: attract more contractors to AML reclamation projects.

3. **In order to provide implementation flexibility to state/tribal agencies and in order to increase the share of reclamation completed by union labor, DOI should extend the expenditure window to 5 years for AML grants under the IIJA.**

Justification: the AML section of the IIJA makes an explicit reference to redistribution of any unused AML IIJA funds at year 20, which is five years after the 15 years of annual allocations. This appears to imply that the intent of Congress was to allow for five year expenditure windows.

Goal A: provide implementation flexibility to state and tribal agencies amidst a rapid increase in funding. Historically, the expenditure window for AML grants to states and tribes has been 3 years. As the volume of reclamation increases rapidly and agencies enter an era of transition–hiring new staff and updating their programs for IIJA implementation–a 5 year expenditure window could provide much-needed flexibility.

Goal B: increase share of AML reclamation completed by union labor by providing agencies the flexibility to pursue larger (or bundled) contracts with funds from multiple years. If the expenditure window is shorter, agencies may feel more pressure to complete projects as quickly as they can, even if they aren't large or bundled. With a longer expenditure window, states and tribes would be more able to use some funds from multiple years in putting forward larger contracts, which could make them more likely.

4. **In order to increase the quality of reclamation, ensure irresponsible contractors aren't awarded federal money, and increase the share of reclamation completed by union labor, DOI should require Responsible Bidder (RB) criteria.**

DOI should take steps to lower risks to federal, state, and tribal agencies by requiring that bidders on AML construction projects meet basic criteria, such as maintaining valid licenses and certificates, compliance with all federal, state, and local laws, having no history of business or labor violations, prequalifications surveys, and meeting bonding and general liability requirements. Sample responsible bidder criteria is provided in appendix 2 courtesy of LiUNA Mid-Atlantic Region, and the Illinois Economic Policy Institute explains the benefits of RB criteria.

Justification: Given the DOI's out-sized role in AML construction (federal grants fund 100% of AML construction costs in most states), the federal government should take steps to ensure federal funds are spent responsibly.

Goal A: ensure irresponsible contractors are not awarded federal money. Increased AML funding risks attracting unscrupulous contractors who may rush to a new pot of public construction money. Risks from irresponsible contractors can be significant: in 2021, the Pennsylvania Attorney General sentenced Glenn O. Hawbaker, Inc. regarding the wage theft of $21 million in fringe benefits from its employees. Without responsible bidder protections, firms like Hawbaker–a large general contractor that had been awarded $1.3 billion in contracts from the Commonwealth of Pennsylvania from 2003-2018–could potentially win large AML contracts.

Goal B: increase share of AML reclamation completed by union labor. In a report by the Illinois Economic Policy Institute (ILEPI) and Midwest Economic Policy Institute (MEPI), researchers studied construction procurement among local government jurisdictions in Illinois and Indiana that have recently adopted RB requirements and found that "data conclusively shows that union contractors are more likely than nonunion contractors to be responsible businesses that are good stewards of taxpayer dollars. That's why responsible bidder ordinances increase the market share of union contractors by between 9% and 13%."

Goal C: reduce worker turnover and provide family-supporting wages to AML construction workers. MEPI found that pay is 8% higher among heavy/highway construction workers in Indiana counties with RB ordinances than in Indiana counties without them–and worker turnover is lower. In another study ILEPI and MEPI found that RB ordinances in Indiana and Illinois "promote apprenticeship programs that produce skilled craftworkers for local businesses, and increase work for contractors who pay family-supporting wages and benefits."

Goal D: Increase the quality of reclamation work. By requiring contractors meet verifiable criteria and standards and don't cut corners, RB requirements could help increase the quality of reclamation work. An ILEPI and MEPI study found that RB ordinances in Indiana and Illinois "deliver accountability and transparency for taxpayers" and that RB ordinances had no impact on construction costs– or in some cases lowered them. A 2003 study by the Fiscal Policy Institute found that "a contractor with labor law violations is more than five times as likely to have a low performance rating…than a contractor with no labor law violations." A low performance contractor is a contractor that has been costly to a municipality. Based on their research, ILEPI argues that "By weeding out cut-rate contractors, RB ordinances encourage successful project delivery and ensure that taxpayers get the quality they pay for." By increasing the share of AML contractors who are union, RB requirements also help promote a high bar for quality craftsmanship among AML construction workers.

5. Establish apprenticeship requirements

According to the Illinois Economic Policy Institute, "Registered apprenticeships are training programs in which participants get the opportunity to 'earn while they learn,' with tuition costs covered by employers and labor-management organizations who gain access to a pool of skilled, productive, and safe workers." Linking AML contracts with the utilization of workers who have come through apprenticeship programs can both help address the workforce needs of the new program and provide on-ramps to the AML construction industry for local residents. A report by ReImagine Appalachia proposes a general rule of requiring 20% of hours on a project with apprenticeship utilization to be completed by apprentices. In order to both support contractors with existing apprenticeship programs and incentivize the development of apprenticeship programs for the AML workforce, we recommend:

- Effective immediately, require apprenticeship utilization for contracts above $1 million and require up to 0.5% of the value of those contracts to support pre-apprenticeship programs. However, recognizing that it will take time in some states to grow such programs, DOI could explore a waiver process that permits offering a contract to the lowest bidder if none of the bidding contractors have an apprenticeship program.
- Establish increasing standards for apprenticeship programs across all AML contracts. For example, increase the required apprenticeship hours or number of apprentices employed on AML projects over time.

Justification: Given the DOI's out-sized role in AML construction (federal grants fund 100% of AML construction costs in most states), the federal government should take steps to ensure that increased AML investments can be met by a corresponding increase in AML construction supply, especially in terms of a qualified workforce. Apprenticeship utilization requirements could be included in RB criteria for large AML contracts. These policies could also help DOI satisfy the preference in the AML section of IIJA for hiring workers from the coal sector.

Goal A: grow skilled AML reclamation workforce and address concerns of workforce shortage. With the 271% increase in annual funding, some agencies are concerned about securing the workforce necessary to meet this increase in AML construction demand. By requiring that large AML contracts are linked to the utilization of a

registered apprenticeship program, DOI can provide the certainty and stability that employers and unions need to grow existing and new apprenticeship programs specific to AML construction occupations. Growing relevant apprenticeship programs are among the most effective ways to grow the AML construction workforce in regions with significant AML damage. And joint apprenticeship programs are directly linked to an employer, so workers get paid while they train to become AML construction workers and AML contractors have a skilled pool of workers.

Goal B: increase access of family-sustaining AML construction careers to those not already in the industry, including former coal workers. According to a report from the Illinois Economic Policy Institute, "Joint labor-management apprenticeship programs are the bachelor's degrees of the construction industry, delivering training hours, diversity outcomes, competitive earnings, and positive social and fiscal effects that rival universities and community colleges."

By incentivizing the growth of apprenticeship programs for AML construction careers, DOI can help create new pathways out of poverty for people in regions with AML damage. ILEPI found that "The annual income gain from participating in a registered apprenticeship program [in Illinois] is greater than the effect of having an associate's degree, as well as many bachelor's degrees." ILEPI also claims that joint (employer-union) apprenticeship programs include a higher percentage of people of color than employer-only apprenticeship programs, underlining their potential to open up new opportunities to people of color.

To ensure community benefits, including local hiring from diverse communities, [up to] one half of one percent of AML funding on any project should support apprenticeship readiness/pre-apprenticeship programs that enable successful participants to gain access into apprenticeship within trades participating on the project. Working in collaboration with participating trades and their contractors, each project should set 'reach' goals for the share of pre-apprentice and new apprentice hours in total project hours and the communities/neighborhoods (possibly defined by zip code) from which these apprentices/pre-apprentices are drawn. Working again with the participating building trades and their contractors, each project should deploy the available funds for pre-apprenticeship and apprenticeship training and other support services (e.g., purchasing tools or boots, mentoring) that make it possible to meet the goals.

6. Enforce Davis-Bacon prevailing wage regulations.

Goal: pay family-sustaining wages–and a minimum of $15 per hour– to AML construction workers. Given that applying Davis-Bacon prevailing wage regulations to AML contracts will be new for AML agencies, it will be important to ensure that the regulations are enforced effectively and across all of the AML programs. DOI should consider a) ensuring that DOI's compliance plan is congruent with the responsibilities of federal agencies under the Reorganization Act of 1949 and its accompanying regulation, b) requiring state and tribal AML agencies enforce Davis-Bacon by establishing an active monitoring program that includes monthly worker surveys, c) working with DOL to provide Davis-Bacon enforcement trainings for state/tribal AML officials, and d) connecting state and tribal AML officials to relevant offices at DOL regarding Davis-Bacon enforcement. When agencies begin to implement Davis-Bacon regulations for the first time, it is not uncommon for staff to lack experience in dealing with enforcement (for example, how to handle reports of Davis-Bacon violations).

An active monitoring program helps verify that workers know their rights, aren't being lied to by their employer, and are actually being paid what the contractor is reporting to the AML agency. For example, the Pennsylvania Department of Transportation utilizes an active monitoring system that includes monthly worker surveys.

The Department of Labor has proposed a recent rulemaking that would update the Davis-Bacon regulations in terms of how prevailing wages are calculated and require more frequent updates to prevailing wage levels (instead of locking a contract into the prevailing wage levels at the award date). DOI should ensure that it stays abreast of the updated rulemaking and related enforcement.

With available data, it is difficult to know whether all AML construction workers are paid above $15 per hour. The recent Executive Order requiring a $15 hourly minimum wage for federal contractors applies to all projects subject to Davis-Bacon requirements, so successful enforcement can help ensure no AML construction worker is paid less than $15 per hour.

Justification: The AML section of IIJA requires that Davis-Bacon regulations be applied to AML funds under the IIJA.

7. In order to increase capacity to quickly address AML emergencies and lower reclamation costs, DOI should establish construction crews within state/tribal agencies.

Small in-house construction crews within Pennsylvania's Bureau of Abandoned Mine Reclamation (BAMR) have reclaimed AML projects in Pennsylvania for decades. For some projects, in-house crews can be mobilized more quickly than procuring an external contractor, and for that reason are advantageous for addressing AML emergencies. Appendix 3 below provides a case study of the AML reclamation crews in Pennsylvania. As climate change leads to more extreme weather events and periods of increased peak precipitation, AML emergencies such as landslides may increase. Drawing on lessons from Pennsylvania, DOI could encourage AML agencies to hire regional public reclamation crews in order to increase capacity to address small emergencies quickly.

Goal A: increase capacity to address emergencies at a moment's notice. Some AML problems, such as subsidence below a home, an underground mine blowout, or an impending landslide above a neighborhood, require urgent attention. Increasing cleanup speed by even a few days can make a big difference in these instances.

Goal B: increase capacity to address rise in AML construction demand. Increasing in-house reclamation crews could quickly add some capacity at state and tribal agencies to address problems.

Goal C: pay family-sustaining wages to AML construction workers. Though there is variability across regions, in general state government jobs pay well and many are union jobs.

Goal D: lower reclamation costs. In-house crews in Pennsylvania have developed a high level of craftsmanship working mostly on a few different types of AML problems. The efficiency of the crews, alongside avoided costs from contractor profit, could enable the agency to save time and lower costs on some emergency projects.

8. In order to increase transparency, support family-sustaining wages, improve the quality of work and the safety of job sites as well as increase the opportunity for local hiring, Project Labor Agreements (PLAs) for AML projects should be considered.

PLAs are already utilized on many AML contracts in Illinois where state law requires them for public construction projects. The Illinois AML Reclamation Division and state procurement agencies work with the Illinois AFL-CIO and the Building Trades Council in the region where the project is located to secure a PLA and contractor for eligible

projects. However, this practice is not yet widespread across the states/tribes with AML programs. Implementation of PLAs should be further investigated as a best practice for AML contracts.

Justification: the White House has recently underlined the benefits of PLAs in a recent executive order requiring PLAs on projects above $35 million. Given the federal government's out-sized role in AML construction (federal grants fund 100% of AML construction costs in most states), the AML program presents a particular opportunity for the federal government to lower the dollar threshold for which to require PLAs on these construction projects.

Goal A: increase share of AML reclamation completed by union labor by requiring large AML contracts to be subject to collective bargaining agreements for the project.

Goal B: pay family-sustaining wages to AML construction workers. Requiring PLAs on large projects would increase the likelihood that union workers would complete a significant share of AML construction. Recent reports by Reimagine Appalachia and the Economic Policy Institute outline the cost, pay, and quality benefits of PLAs, which are utilized extensively across the country.

Goal C: lower AML reclamation costs. By addressing coordination challenges and uncertainty in the contracting process that can be associated with large construction projects, PLAs could help lower costs on both the administration and the construction side.

Administrative Recommendations

9. Convene DOI-led working group on reclamation workforce, and hire OSMRE staff to implement programs related to reclamation workforce matters.

Goal: help achieve implementation of labor-related goals above, including those related to family-sustaining pay, union jobs, and concerns around the supply of AML construction services. As DOI increases focus on creating good union jobs under the IIJA, DOI should use its role as a convener to bring together for the first time stakeholders around issues related to the AML reclamation workforce. Those stakeholders could include labor unions, contractors, OSMRE, state and tribal AML agencies, partner agencies like the Interagency Working Group on Coal and Power Plant Communities and Economic Revitalization (Coal IWG), Appalachian Regional Commission (ARC), Economic Development Administration (EDA), and Department of Labor (DOL), regional research institutions, and non-profit organizations and trade associations who work on reclamation issues.

The creation of the working group could help underline the priority that DOI is putting on labor issues and call attention to these matters for state and tribal AML agencies. The role of the working group could be to, first, share information and establish joint research/monitoring on topics such as a) understanding where AML cleanup overlaps in regions with significant coal job loss and related decline, b) understanding workforce capacity and apprenticeship programs in AML-impacted areas, and c) understanding the pay distribution and union density of AML reclamation workers.

The working group could also serve the role of jointly pursuing goals such as a) making AML construction jobs as accessible as possible (with respect to residents of regions impacted by coal's decline, to those who may not have prior construction experience, and to historically disadvantaged groups) by growing apprenticeship programs and other efforts, b) sharing best practices or models with regard to implementing labor-related policies (such as

Davis-Bacon compliance, RB criteria, PLAs, and bundling), and c) establishing an ongoing research project to study the optimization of bundling AML projects.

Goal: ensure AML construction work benefits workers and communities negatively impacted by the decline of the coal sector. In addition to working with the Coal IWG, EDA, ARC, and DOL to identify AML projects that are located in counties impacted by coal's decline, OSMRE and state and tribal AML agencies could work with those partners and unions to fund AML workforce apprenticeship programs in areas with insufficient workforce capacity.

To maximize the benefit to communities impacted by coal's decline, OSMRE should consider prioritizing targeted local hiring preferences where hiring workers from the coal sector is not practicable.

10. Provide legal flexibility to states and tribes to consider criteria in addition to the Priority 1-3 hazardous ranking system in determining which projects to prioritize for cleanup.

Goal: help achieve implementation of goals related to bundling AML projects, prioritizing more large AML projects, preference for coal sector and local workers, and responsible bidder concerns. Historically, state and tribal AML agencies have focused on the Priority 1-3 hazardous ranking system in determining which AML projects to prioritize for cleanup. If agencies are now asked to consider goals such as increasing contract size, then OSMRE will need to provide explicit regulatory flexibility to include additional considerations–such as prioritizing more large projects and bundling AML projects–alongside the Priority ranking system. Without such explicit flexibility, AML agencies are likely to continue to use the Priority system as their exclusive guide in selecting projects, which could make it difficult for them to simultaneously meet new goals such as increasing contract size.

Similarly, as agencies pursue larger contracts, OSMRE should take steps to provide state and tribal AML agencies the flexibility to consider criteria such as RB criteria, apprenticeship utilization, and PLAs on large projects in addition to the low-bid procurement requirement that many of the agencies currently use. Without such guidance, agencies may use low-bid as the sole procurement criteria for large projects.

Appendix 1. Lessons from bridge and highway bundling in Indiana and Pennsylvania

Researchers with Purdue University worked with the Indiana Department of Transportation (INDOT) to study the impacts of the state's highway project bundling program, which saves INDOT up to $50 million annually.

Researchers analyzed 1,997 projects of different types delivered through 715 contracts over 9 years–some contracts were standalone projects while many were bundled. They found that a) as project size increased, unit costs decreased (i.e. economies of scale), b) project costs declined when bundled together–but only for projects of a similar type– (i.e. economies of bundling), and c) having more bidders lowers costs, but that in some cases contracts were too large and reduced the number of bidders (i.e. economies of competition).

The researchers with Purdue found that bundling 2-4 projects maximized the number of bidders, though they also found that "although the *maximum* number of bidders is generally higher for contracts that are less expensive, the *average* number of bidders is not necessarily higher. A very small contract sometimes can be less attractive to contractors compared to a large contract." The latter is likely the current market situation for many AML contracts. It's also worth noting that INDOT highway projects may be larger in dollar value than average AML projects, so optimal bundling may be different for AML projects.

Qiao et al. (2021) found that bidding competition was higher for bundled projects when the projects were geographically closer together. Qiao et al. (2019) found that for highway projects both a) the impact of bundling on bidding competition, and b) the threshold at which further bundling increases costs, varied by project type and market conditions.

Researchers found that bundling similar work types together was crucial: "Repeatable details and similar designs can save both design and construction time, and grouping multiple projects into one contract can lower the unit cost for materials, resulting in a lower cost per project." Qiao et al. (2019) proposes a set of characteristics to consider when classifying highway projects by similar type for bundling. Similarly, officials with a PennDOT bridge bundling program have found that "To maximize efficiency in design and construction, only bridges with very similar details are chosen." PennDOT found that if there are more than 3 designs per bundle, the project risks losing its cost efficiency, and that contracts were optimized when 7-10 structures were bundled together.

Relative to common bundling projects such as roads and bridges, AML problems –even problems of the same type, such as highwalls–vary considerably by site, which could impact the potential for cost savings. Different problem types may be better suited for bundling than others. Analyzing bundling projects nationally over time could improve cost savings. INDOT utilizes machine learning to select which road projects to bundle in order to optimize cost savings. The current quality of site data in the federal AML inventory would preclude such an algorithm-driven approach to bundling AML projects at present, but if the quality of the AML inventory were improved such an approach could potentially be employed in the future.

The US Department of Transportation has compiled resources on bundling, including case studies and lessons learned from other bundling projects across the country.

Appendix 2. Sample Responsible Bidder Language

Section xx. Responsible Contracts.

(a) For all aspects of construction, reconstruction, demolition, alteration, repair, or maintenance work on the project, the [individual] shall promote successful project performance, safety, law compliance, level competition, and business integrity, and ensure future workforce development, by utilizing only contractors and subcontractors that:

(1) Maintain all valid licenses, registrations, or certificates required by a federal, state, or local government that may be required to do business or perform work at the location of the facility.

(2) Are in compliance with the Workers' Compensation Act and Unemployment Compensation Law, and meet bonding and general liability insurance requirements set forth by the contract for work.

(3) Within the last three years, have not been found by a final decision of a court or government agency to be in violation of any law or regulation applicable to its business, including tax, prompt payment, wage and hour, prevailing wage, environmental, or safety laws or regulations, and has not been debarred or suspended on any project by a federal, state, or local government entity.

(4) Within the last three years, has not defaulted on a project or declared bankruptcy.

(5) Within the last ten years, has not been convicted of any crime relating to the contractor's or subcontractor's business.

(6) Ensure that all individuals employed for work at the facility have completed a minimum of the 10-hour safety training course established by the Occupational Safety & Health Administration of the United States Department of Labor.

(7) Participate in an approved apprenticeship training program that is registered with and certified by the United States Department of Labor or the Department of Labor and Industry of the Commonwealth that provides for on the job training, classroom training, and the graduation of apprentice trainees to the status of journeyperson similar to and pursuant to the training and graduation requirements as outlined under the registered apprentice training programs that are certified by the Department of Labor and Industry, for each specific trade or classification employed for work at the facility. This may be an apprenticeship program subject to the Employee Retirement Income Security Act of 1974, 29 USC sec. 1001 et seq. ("ERISA"), or a non-ERISA program.

(b) The individual shall submit an attestation along with their [bid] affirming compliance with this section.

Appendix 3. Case Study: Public AML Reclamation Crews in Pennsylvania

Case study from page 38 of Dixon (2021), Ohio River Valley Institute

In Pennsylvania, the Bureau of Abandoned Mine Reclamation (BAMR) has two in-house reclamation crews, one for each coal district in the state. The crews have an interesting history: they trace back to a state-level reclamation program started in the 1950s, decades before the federal AML program was created in 1977. The Bituminous District in-house crew and the Anthracite District in-house crew are staffed by twelve workers each. They are full-time, permanent staff positions at BAMR. As state employees, they are represented by Council 13 of the American Federation of State, County and Municipal Employees (AFSCME).

The in-house crews in Pennsylvania complete a high volume of small projects each year. In just the past eight years (2012-2019), the in-house crews have reclaimed 1,198 projects—an average of 150 projects annually.

These projects run the gamut of types of reclamation, and include remediating: mine subsidence, mine drainage, dangerous slides, mine shafts, dangerous highwalls, clogged streams, and explosive mine gas. In-house crews completed 78% of the total number of projects completed under BAMR during that time period, though these projects were only 4% of the total reclaimed acreage. Under their current configuration, these in-house crews specialize in small projects and in quickly mobilizing to reclaim projects.

BAMR officials note that if they receive an emergency request, such as a landslide threatening someone's home, it usually only takes a few days to mobilize an in-house crew to reclaim it, but if they had to go through the regular order of bidding the contract externally, it is more likely to not be addressed for a week or two.

In general, staff of Pennsylvania's in-house reclamation crews are highly skilled and have significant reclamation and/or construction experience. They typically do not complete larger projects, not because of a lack of skill, but because of a lack of heavy machinery. The largest equipment needed for some types of AML reclamation are huge capital expenditures that the state does not already own, so BAMR usually opts to bid out the projects that require specialized or heavy machinery.