

Jason Altmire ([00:04](#)):

Hello, this is Jason Altmire. We are back with another episode of Career Education Report. And today we're going to be talking about the workforce needs that are going to be coming because of the public policies and the incredible expenditures that we're going to see in this country related to transportation, infrastructure, clean energy. And these are issues that are long overdue that have needed to be addressed in this country. And the Biden administration has signed legislation over the past couple of years that has dealt specifically with these issues. But the problem is who's going to do the work? If you're going to move forward with a transportation infrastructure and spend \$2 trillion as a country on upgrading our roads, our ports, our airports, roads, and bridges, we're going to need workers to do that. And if you're going to do the biggest of its kind ever in history, clean energy expansion in this country, solar, wind, energy, turbines, you're going to need workers to do that.

Jason Altmire ([01:10](#)):

And who's going to do that work? That's what we're going to talk about. Where are the shortages? Where are the opportunities for schools and for students and for the future of the American workforce? And we have the best guest possible to talk about that today. And that's Philip Jordan, he's the vice president and principal researcher of BW Research, and he leads the firm's energy practice. And his research is focused on the intersection of the human age and the digital, especially with regard to the inclusive economic and talent development that lead to increased mobility. He's a Lumina certified practitioner of human-centered design and he's credited with using data and communications to create change. He's been widely quoted on the news articles that have covered these topics. And he's a fellow at the Ash Center for Democratic Governance at Harvard University's John F. Kennedy School for Government. Focuses his teaching on research and comparative talent and labor practices in the US and Asia.

Jason Altmire ([02:15](#)):

He's an attorney, he's a member of the Massachusetts bar. He has his JD and certificate in environmental and land law from Boston College and his BA in psychology from the University of Connecticut. So he is a true New Englander. I cannot think of a resume that screams New England more than that one, but he is also an expert on the issues that we're going to be talking about today. So Philip, thank you very much for being with us. And at first, if you could just talk about BW Research and the expertise that the firm brings and then the work that you do.

Philip Jordan ([02:50](#)):

Sure. Thanks. And thanks so much for having me today. Really excited to discuss this important topic. BW Research has been involved in energy research and that sort of intersection that we've been talking about talent development and economic development in the energy sector for more than a decade, actually going back to many of the investments made by the Obama administration coming out of the great recession. And really we had a number of similar questions, which is if we're going to create a lot of new at the time called green jobs, what are we going to do to prepare the workforce for those opportunities? So we did a lot of work for federal labs and national laboratories, as well as state governments. And then in 2016, we started work with the US Department of Energy on a report called the US Energy and Employment Report, which tracks energy jobs in the United States across all 50 states and a number of technologies on an annual basis.

Philip Jordan ([03:47](#)):

That's really given us a good baseline and framework for how to think about energy jobs. And more recently we've applied that understanding how new investments and policies can increase employment in those categories, across the states for both different industries or sectors or technologies as well as occupations, which I think is really where we can spend the bulk of our time today. I will just note at the outset that one of the key differences that we've seen over the last 10 years from our early research and the research we're doing today is that unlike with the coming out of the great recession and those investments coming out of the American Recovery and Reinvestment Act, we now have very, very low unemployment. And of course back in 2009, 2010, we had very high unemployment. And so that's one of the key challenges that we faced today. And I'm glad that you've already sort of brought up Jason, this critical question of where are we going to find these workers for this new energy transition and new investments in infrastructure.

Jason Altmire ([04:47](#)):

We represent private post-secondary career schools, and we focus a lot of attention in our podcast talking about that sector of higher education and the training workforce. And you may be aware of some of these numbers, but our schools, private post-secondary schools produce more than half the truck drivers in the country, 51%. For 40% of the aviation mechanics in the country, the folks who work on your airplane that you want there to be highly skilled workers and a lot of them, 40% of them come from our schools, HVAC installers, auto technicians, also 40%, welders about 20% of the welders in the country. You are certainly going to need a lot of welders with the transportation and energy work that's going to be done. Almost all of the underwater construction divers, which you're going to need a lot of with offshore wind turbines and port maintenance and things like that, those come from our workers.

Jason Altmire ([05:47](#)):

And we get frustrated with public policy that seems to disincentivize students from choosing that career path. And it just seems like when you're looking at the future opportunities for students, if you look at where the jobs are going to be, and you've talked about this in other forums, clean energy and infrastructure, and these more blue collar trades, you're going to be able to find work in the coming years because there's going to be trillions of dollars of public money in addition to the private money that will be spent on this. So can you talk about what your research has shown about where the gaps are and where these workers are going to come from?

Philip Jordan ([06:30](#)):

Absolutely. And the occupations that you listed are absolutely in the bullseye of where a lot of this job creation is going to happen. We already are seeing difficulty for employers finding workers in HVAC and for welders and other key construction trade occupations. So high levels of difficulty already in finding the talent that we need. And those are, as I said, squarely in the bullseye of where the job growth is going to be. Not only will there be ample opportunity for individuals and students who go through these types of programs to find work no matter where they are in the United States, many states are looking at their workforce development strategies and recognizing that their ambitious climate goals on top of the federal investments that are being made suggests that there could be real critical shortages in those fields.

Philip Jordan ([07:22](#)):

So you mentioned welders and thinking about offshore wind turbines and the importance of welding for everything from secondary steel, for putting ladders on the towers, to some of the pipe fitting work that also comes in to play with those turbines and towers. You mentioned several different motor vehicle and aviation occupations, which will be impacted by a transition away from internal combustion engines toward electric or alternative fuel vehicles. HVAC is probably the single largest, fastest growing occupation as a result of these policies and investments across the United States where new technologies for air source and ground source heat pumps are rapidly displacing and will even more rapidly displace more traditional forms of heating and air conditioning. So enormous opportunity for your students in those fields and really tremendous numbers of jobs being created from these policies all across the United States.

Jason Altmire ([08:26](#)):

And I think with opportunity comes challenge and part of the challenge and what you've described and what we see coming is it's going to be different. It's not like we're creating more of the same type of jobs. We're creating jobs that have not existed before. We're creating a type of work for which people have generally not been trained. When you look at just we're moving rapidly towards electric cars, the maintenance work that's required on an electric car is completely different than the maintenance that's required on a gas operated car. So you need to change if you're a school, if you're somebody who's training the future workforce, you need to change the way you're looking at the future.

Jason Altmire ([09:08](#)):

And you talked about some of the clean energy jobs that are going to be coming along. We have some schools that do the wind turbine maintenance and construction jobs. And part of the issue has been, we're not quite there yet. So they're training students and the jobs hadn't been there in the past. Well, now they're about to be, but maybe you could talk a little bit about how you would advise, not just schools, but unions and workers, workforce training opportunities for people and how they can look at the future and determine maybe I need to change my method here. Maybe I need to do things a little differently.

Philip Jordan ([09:53](#)):

Yeah. I mean, I think that there are three sort of primary things that we can look at. Right. So one is that just as the majority of homes 100 years ago, were heated with coal or wood, the majority of homes after 2030, 2035 are going to be heated by electricity. That is something that I'm pretty confident in saying given what the policies are. So what's the primary difference there? Right. If you are an oil burner technician, right, an HVAC technician with a focus on oil burners, it's going to be really important for you, particularly if you're earlier in your career to start getting certifications and things like air source heat pumps, where the new legislation provides up to \$10,000 in rebates for homeowners, which are on top of any state rebates that exist to transition off of fossil fuel heat for electric heat pumps. So there's a good example where you should have a good partnership with some of the manufacturers of these products so that the certifications can be specific to the most popular installed products, but also an opportunity for reskilling.

Philip Jordan ([10:59](#)):

So there are going to be plenty of workers who are out there who may be work in HVAC and don't know all of the ins and outs, or are not certified in installing something like an air source heat pump, where there could be an opportunity to go back to school and get that certification. So that's something I think that could be a really valuable area for us to think about. I would say that building electrification is probably the best area for individuals to be thinking about, overall thinking about the entire United States. Offshore wind is obviously going to be more heavily concentrated around the coast. So clearly if you live near an area that's developing a lot of offshore wind, there's going to be great opportunity there. But to talk about a national approach where you're thinking about where across all 50 states, will there be a lot of work for a lot of different types of trades people, it's really in that building electrification.

Philip Jordan ([11:45](#)):

And that includes traditional energy efficiency activities like building envelope, thinking about insulation and exterior insulation and siding as well as some of the newer technologies around building controls and HVAC, which you already mentioned, maybe storage, in home battery storage, other things about electrifying that building. There's just going to be a lot of opportunity there. And as you suggested, a lot of these technologies are fairly new and will require new certifications. You mentioned labor unions and labor unions will be doing a lot of the larger utility projects and the construction side where there's a lot of the project labor agreements as a requirement or an incentive for many of these projects. But there are a lot of opportunities, I think for private training providers to engage with labor unions first, to understand different areas where there's complementary, but also to understand how we can start pulling more people off the economic sidelines and getting them into the game. And I think that's going to really require an all hands on deck approach to make sure that we're having a comprehensive strategy for training our workers for this clean energy transition.

Jason Altmire ([12:52](#)):

I saw in one of the articles that was discussing these topics, you were talking about labor unions, and you had mentioned that they're very good at rapidly up scaling and meeting the needs when things like this happen. Can you talk a little bit more about that and not just the history of unions, but what the future will look like and what they will have to do to adjust and adapt moving into the future?

Philip Jordan ([13:17](#)):

So labor unions are an interesting model, particularly around the construction labor unions, right? Because they are almost an employer intermediary, right, where they're often responsible under a project labor agreement for supplying the workers that are going to be coming into a project. And so labor unions tend to have long wait lists and a pretty strong training infrastructure. So what labor unions generally do not do is train people in an advance and hope for some sort of additional opportunity. When you join a labor union, you're hired as an apprentice, right, and then you're going to work and you're learning on the job. So I think that there's a couple of things that labor unions will need to be thinking about as we go forward. I mentioned the very low unemployment rate that we have currently, and we also have lower labor force participation coming out of the pandemic.

Philip Jordan ([14:09](#)):

So what that means is our pipeline of potential workers is a lot smaller than it has been in years past. So when you have a tight labor market and you have explosive growth on top of it, you can see that there's

actually a shortage, not just in the training opportunity, but in the numbers of people we can draw from to get them into the game. So this is an area where a lot of those folks who are left, who have been either left behind in the economy previously, or perhaps have not considered careers in construction trades, may require some additional workforce supports, some additional academic support, some additional support services. And that's an area where we really, I think, could address focusing some attention on preparing the workers in an apprenticeship readiness program or series of programs. So that individuals who maybe have a longer journey to enter either one of your schools or a labor union, or some combination where we can shorten that pipeline by investing more in the training of individuals to prepare for that apprenticeship.

Jason Altmire ([15:18](#)):

And our schools have students that are, they're adult students sometimes at mid-career, but usually they've tried something else before, and maybe they've gone through a difficult transition in their life. Single moms, veterans returning to the workforce, been downsized in a job, going through a difficult time, looking for a change. And it does take them a while to decide what the direction of their life is going to be and what the career they want to pursue. And I think these opportunities are going to be something that will be of great interest to people who come from that background, as well as people, right out of high school, looking to decide what their future career is going to look like.

Jason Altmire ([16:02](#)):

And I wanted to just close by asking you your opinion as an expert and you work for one of the premier firms that does this type of work and evaluates where the needs are and how they're going to get filled. How do you see the pipeline developing in the future? Where do you see the role for schools like ours, the private post-secondary career schools, absent the political considerations. What do you see as the future workforce development pipeline? What does it look like?

Philip Jordan ([16:36](#)):

I think one of the key areas that is going to be critical in all of this is raising awareness and exposure to these different types of careers. And that's, I don't think certainly solely the role of private institutions and trade schools, but it's certainly an area where those schools can help. Right. There's a lot of alumni and there's a lot of good success stories where you can tell the story of what it's like to have one of these careers. And I think that could be really beneficial because while it's absolutely true that a lot of women and veterans and others who are maybe have not participated in the industry at high levels in the past would very much appreciate and enjoy these types of careers, I think awareness is still a bit too low about how positive these careers can be and how you can have a very good job that you could be proud of and earn in a very good wage.

Philip Jordan ([17:27](#)):

I think more awareness around that could really help. That leads directly into the pipeline because I do think we are going to need to attract folks who have not always considered or thought of a construction trade job in their future. And part of that, you alluded to early in our conversation, which is that there has been a narrative and a pressure on folks to take different pathways. And what that's done is it's left us with a shortage of tradespeople. And I think anything we can do to address that is going to be critical. So really focusing on that entry point of the funnel and making sure that folks are aware of and ready for the education and apprenticeship pathways that exist in these careers. We're certainly going to need a

lot more folks entering this industry. The growth rates that are projected from these investments are enormous.

Philip Jordan ([18:15](#)):

We're talking in some places five or six or seven times the historical growth in some of the occupations over a 10 year period than we've seen in prior decades. So an enormous opportunity. Really critical that we have this all hands on deck approach and focusing on expanding that pipeline and expanding that funnel to bring people in off of the economic sidelines, making sure that we have the right supports to ensure that people can stay with the program. And then really focusing on that long-term upskilling and providing those types of certifications and skills that are necessary to perform these sort of clean energy functions or these critical infrastructure functions, which we didn't talk about as much today, but developing that EV charging infrastructure, for example, or upgrading those ports.

Philip Jordan ([19:02](#)):

There are a lot of specific considerations around different technologies. How deep a port needs to be in order to be able to take a vessel or a barge for offshore wind is a good example of that. So lots of very specific skill certifications that are going to be necessary, but I think it really starts with building that pipeline of workers and building that funnel. So we're getting more people interested and excited about and enrolled in these programs so that we can ensure that talent is not the constraint to meeting the goals of the federal and state administrations.

Jason Altmire ([19:35](#)):

That's very well said. And the way we put it is we're going to need all of the above approach moving forward. We should not restrict access to people going into the field of their choosing. And certainly we don't want to restrict the pipeline for these high demand jobs. If somebody wanted to find out more about your work Philip or BW Research, where would they go?

Philip Jordan ([19:58](#)):

Sure. Would love for you to visit our website at bwresearch.com. You can find all previous reports on there. You can find out information about the firm and there's also a contact page where you can reach out to us directly.

Jason Altmire ([20:10](#)):

This has been Philip Jordan, vice president and principal researcher at BW Research. Philip, thank you very much for being with us.

Philip Jordan ([20:18](#)):

Thank you.

Jason Altmire ([20:22](#)):

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