

THE BROOKINGS INSTITUTION

WEBINAR

EXPANDING CLIMATE CAREERS WHILE IMPLEMENTING THE INFRASTRUCTURE
INVESTMENT AND JOBS ACT (IIJA)

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Panel:

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Fireside Chat:

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PROCEEDINGS

MR. KANE: Good afternoon, everyone. Welcome to today's event on expanding climate careers while implementing the Infrastructure Investment and Jobs Act. My name is Joe Kane and I'm a fellow at Brookings Metro who will be kicking off and moderating today's conversation. And this is a timely conversation to say the least. Much of my work focuses on the intersection between infrastructure and economic development with a focus on workforce issues.

But on behalf of the Brookings team, I'm thrilled to be collaborating and co-hosting this event with our friends at the Council for Adult and Experiential Learning or CAEL. For those of you not familiar, CAEL is a national leader that concentrates on education to career pathways all across the country.

Like many of you tuning in today, Brookings and CAEL are exploring a generational challenge and opportunity all across the country. Connecting more and different types of workers to emerging infrastructure careers, especially those in the climate space. We know there are millions of workers struggling both during the pandemic and long before it. These include women and men, unemployed and underemployed, younger students and adult learners among many others who are searching for long term careers, not just short-term jobs.

We also know that the recent infrastructure bill or IIJA is aimed to serve as an economic down payment to support lasting growth. It is not only shining more light on infrastructures workforce impacts but also leading to a surge in federal resources on transportation, water, energy and other system wide improvements in the months and years to come.

That's particularly true when it comes to climate upgrade such as renewable energy, EVs and more. However, simply throwing more money at infrastructure and climate improvements is no guarantee that it will help all people and all places. Federal, state and local leaders who collectively own and operate these systems must better coordinate and collaborate to harness this funding.

In other words, we are in a crucial implementation phase where we can't just pay lip service to infrastructures economic potential but need to maximize infrastructures economic

impact. That means addressing needed talent development in the skilled trades and other climate related occupations in different regions nationally.

Doing so starts with better defining the need. What even are climate careers and who are the workers involved? Too often, policy makers, researchers and other leaders focus on a bean counting exercise trying to calculate a precise number of green jobs and quantifying the macro impacts. They also tend to overemphasize a narrow range of activities and work tasks, usually involved in solar installation and in wind turbines for example.

But we need to take a step back and recognize who individually is going to fill the shoes of a broad range of occupations involved in construction, maintenance and design. Past Brookings research has shown that more than three-quarters of these jobs are involved in the long-term operation from engineers, to technicians, to electricians. To other service positions involved in finance, IT and human resources. In other words, you don't have to wear a hard hat to pursue a climate career.

We also need to better describe the challenge. Yes, many of these jobs can pay more competitive equitable wages compared to all jobs nationally, that's especially true for workers just starting their careers who can earn up to 30 percent more at the 10th and 25th percentiles according to our past research. And yes, the formal educational barriers to entry can be lower in many cases. You know, more than half of these workers only have a high school diploma or less. But that doesn't mean that all workers are finding it easy to enter these careers.

Women fill less than 20 percent of these jobs for instance and people of color remain underrepresented in many of these jobs too. Meanwhile, many current workers in the skilled trades are aging and retiring, leading to huge gaps to fill. As more investment and more jobs become available in the climate space due to growth and turnover, we need to ensure these positions are more accessible.

And that finally leads to the need to discuss the opportunity in front of us. How can policy makers and practitioners increase the accessibility of these jobs. As we rethink hiring, training and retention strategies, who needs to be involved? And then how does IJJA come into

play in all of this? These overarching issues around a climate workforce need, challenge and opportunity in the context of IIJA implementation will help guide our discussion today.

We are especially highlighting both the regional and federal role here. As you may have seen when you registered, we included several questions to inform the conversation and one big takeaway became clear. This is a shared task. No single agency or region is going to address our climate workforce needs alone and the solutions are not going to come overnight. We have to identify the major information gaps and potential areas for coordination and experimentation moving forward.

So to start, I'll be moderating a panel of regional practitioners to do just that. Over the next 30 minutes, this panel will feature a variety of perspectives across a variety of regions nationally to reflect the diversity and complexity of this issue. We will focus on program design, community outreach and equity and inclusion more broadly with insights from an employer, an economic development official and a workforce leader.

Following that, I will turn the mic over to my CAEL colleague Becky Klein-Collins who will have a fireside chat with Betony Jones, Senior Advisor for Workforce at the U.S. Department of Energy to go over more of the federal role. And throughout the event, I want to remind you all that you can submit questions via Twitter using the #ClimateCareers or by emailing events@brookings.edu.

So with that, I'm excited to get into our panel conversation. I'd like to welcome our three panelists to join me on screen. Perfect. So first, we have Jim Auld who is the Director of External Training Initiatives at the NextEra Energy Company. Second, we have SeonAh Kendall who is the Senior Economic Manager at the City of Fort Collins, Colorado. And last but certainly not least, we have Arlen Herrell who is the Deputy Chief for Innovation and Partnerships in the D.C. Department of Employment Services.

Jim, SeonAh and Arlen, thanks again so much for joining today. You know, I'll get right into it. As I mentioned, there are a wide range of different types of positions at play here and a wide range of workers and workforce needs. So sort of a first question to introduce yourselves and

your work a little bit more, what do climate careers mean to you? Who are the climate workers and employers we're even talking about? Where are you seeing, you know, climate related skills and responsibilities that we haven't seen previously? You know, Jim, I thought it would be good to start with you on this first question since you represent an employer perspective and deal with some very specific training and engagement issues.

MR. AULD: Thank you very much and it's a pleasure to be here with all of you in this sort of virtual world, if you will. So this is a great question and it would take me a week and a day to fully answer and I will do an unnatural act and attempt to be brief.

So NextEra Energy is the largest producer of renewable energy in the nation. So it is safe to say that most of our team are involved in climate careers. So, for example, I work very closely with our craft technical side including wind techs, solar technicians, energy storage technicians and renewable energy technicians which are sort of all of the above. And this is a really cool emerging area where they have these multiple skill sets and it's very practical if you think about it, right.

So one cool example that I'm involved in is supporting electric vehicle projects. So NextEra Energy has a division that supports fleet transition to electric vehicles. So for an example, a utility in California is completely transitioning to electric vehicle. So my work with them involves upscaling the existing workforce and ensuring talent to support EV jobs. So that's a good start. I could go on, like I said, for a week and a day but I've got to make sure I leave time for my colleagues and I can circle back if there's more time.

MR. KANE: That's great, Jim, and certainly just the tip of the iceberg, I know, to the wide range of positions I'm sure that you're dealing with and looking to train future and current workers at the moment. So, you know, turning to you offering obviously a broader economic development perspective, how are you thinking about some of these climate career issues in your position?

MS. KENDALL: You know I don't see it as an issue, more as an opportunity especially in terms of not only economic development but workforce development. And when we

look at, as everyone has talked about during COVID, the great resignation, this is an opportunity for a lot of folks to rethink their careers and so, I do think this is a great opportunity.

We talk a lot about with your employers, what are those next things and, you know, the level of opportunities in that. In Colorado, we have been calling it and using the acronym RUN. So Reskilling, Upskilling and Newskilling. So what is that opportunity for employees and employers in this space. So I think it's a great opportunity and one that in Fort Collins, Colorado where sustainability and triple bottom line is part of who we are in the makeup of our community an important aspect. And we work closely with our workforce, education and private sector specifically on this factor as well.

MR. KANE: Right. I imagine that's going to be a theme that hopefully comes up throughout all these questions in the conversation today. Again, it's not just you, yourself kind of acting in isolation on this and sort of coming up with the solutions but it's a lot of collaboration. It's going to require both sort of buy-in and hard work on the part of many different employers, many different businesses and educational institutions et cetera to be part of this.

Arlen, so turning to you. I love your title by the way as Partnerships and Innovation. I feel that captures so much of what's needed here and on many other workforce issues. But can you describe a little bit more about some of the work you've been leading on D.C. on this front.

MR. HERRELL: Yeah, thank you so much. You know, the title, Partnership, Innovation and Partnership is really about making that connection between the public and private industry and providing opportunities. And so, in this role, I oversee both the D.C. Infrastructure Academy which is training district residents for jobs in the infrastructure industry particularly around energy.

And then I also run our office of talent and client services which is our business engagement arm. Where our job is to go out and to work with businesses in the D.C. region to place district residents into career opportunities. And so, really that merger of the two, finding different and new opportunities to train individuals and then taking them directly to opportunities for sustaining

careers.

You know, to me, climate careers means greater opportunities in and success for all men and women who are passionate about climate mitigation, environmental justice and other issues. But it really is about making sure that those opportunities are available for all people, particularly those in underserved communities. And that's really what my position is about. It's about being able to provide those opportunities for district residents.

MR. KANE: That's terrific, Arlen, yeah, and I think a key takeaway that I gather from this anyway is it may not even be so much about, you know, this one position, right, and counting these exact number of jobs. It's more of a process, right, and recognizing that hey, there are all types of workers who are looking for longer term careers here. That the types of positions in this space, many of which are involved in skilled trades but may be involved in transportation, may be involved in energy, may be even involved in water issues. That there's a whole expanse of kind of climate I guess, you know, putting quotes around that and it really does depend on well, the employer, it depends on the region, it depends on where the opportunities are moving forward.

And so, I wanted to build quickly then, Arlen, off of this point. You mentioned you're leading this effort called the D.C. Infrastructure Academy which I highly recommend viewers to look at. You know, it's gotten some coverage I think regionally and a little bit nationally but it's I think kind of an interesting effort in that it's really under one roof, you know, physically and one destination where perspective workers can go to better understand even what are these careers, right.

Like I never really maybe, I'm just thinking in their shoes, they may have not even considered a position in this space and so it provides them that outlet, I think, to rethinking what their career could be. And again, in that survey during registration, you know, we kind of asked viewers like what are the big challenges here, right, like what is holding back people from pursuing careers in this space.

And the two most popular responses we got were training and education which is a big bucket obviously which we can get into and diversity, right. That really recognition that, you

know, there isn't enough being done. I'm kind of leaving that intentionally blank of whose responsibility that is. But there isn't being done enough, right, to reach out to more workers, young, old, you know, people of color, et cetera.

And so, Arlen, I'm curious, you know, amid all these challenges of hiring and training and retention, what do you think is the most serious challenge in the next few years, particularly with respect to hiring and talent development for these occupations? Given that need for diversity and equity, I think, that we're hearing so much about in this sector.

MR. HERRELL: Yeah, I think you hit on a lot of great challenges, right. And so the challenge I think that we're seeing already and that I think is going to carry on is just the information being out there to reach those different communities and those different groups.

You know, when I first came into this space, I didn't even know much about this type of work and I've been involved in government from the beginning of my career. And so, what we're learning with the D.C. Infrastructure Academy which, you know, was founded in March of 2018. Is that there were so many people who were interested in these types of careers and opportunities but they just didn't know about them, particularly in underserved communities.

And people think when you hear green jobs that you have to have a bachelor's degree or a master's degree. It's this kind of nebulous thing that's out there but really digging into what that actually means and understanding that the average person can use their hands every day and still be contributing to changing over into green opportunities.

You know, in 2018, the same year that D.C. Infrastructure Academy was founded, the national solar job census found that only 23.6 percent of the solar workforce was women. Only 1.8 percent were Hispanic or Latino and only 7 percent were African American. And so, at the D.C. Infrastructure Academy, what we're trying to do is try to figure out ways to reach out to those communities. And so, we have partnered with our sister organizations and our sister agencies within district government to really kind of make those connections.

We're working with our Office of Returning Citizens to make sure that those formerly incarcerated Washingtonians are having an opportunity for jobs in this industry. We're

working with our Office on Women Affairs to make sure that women are a part of that.

So I think it's really for those of us who are in this sector to go out of our way to reach people and to teach them that these jobs are not just for, you know, the green folks who are talking about this every day. Just make sure that it's tangible and accessible to the average person.

MR. KANE: Right, all hands on deck, right, and to the extent that, you know, what I've admired about the Infrastructure Academy ideas is it's employers coming together too, right, it's not just the agencies Department of Employment Services doing this but it's D.C. Water, it's Washington Gas, it's the Washington Metropolitan Transit Authority, right. That there are all these employers coming together too recognizing hey, we're finding scarce talent, right. We don't have enough people let alone to fill our current positions let alone if there's a growth, right, in this sector. Where are all these people going to come from?

And so, you know, Jim, I'm curious given some of your experience from the employer perspective, I mean, are you finding, I'd be curious what some of the efforts you're leading. But are you finding this need to fill these gaps and how are you doing that? How are you tying that to specific training and community outreach activities?

MR. AULD: Great question and to sort of piggyback with my colleague there I wanted to give an example of an area that we really move the needle. We've developed academic partnerships with colleges and universities and really you have expectations but this would really help with our diversity, goals and so forth.

What we have realized it's too late. You really have to peel that way back to middle school and high school. So I wanted to give one example. It can be challenging to attract women into the wind industry. You know, the office is 350 feet above ground, it's historically sort of a male dominated vocation, right. Well we recently facilitated a STEM camp in one of our partner schools in North Dakota. And there was a young lady that participated and she just became enthralled and excited about renewable energy and wind technology.

So then when she graduated from high school, she entered into the wind

technology program at the school in North Dakota. I'm pleased to report she's the number one performing student. I have a picture of her on top of a nacelle, you know, 300 feet above ground with a big smile on her face. So we're certainly looking forward to bringing her on this summer as an intern and then, of course, long term bringing her on as an employee.

So I really think it becomes that intense, right. You have to capture imagination early and sort of groom if you will. And it requires industry to be working very closely with their academic partners and their talent pipelines. You can't just create a talent pipeline and think it's self-sufficient. It's truly a collaborative effort.

MR. KANE: Yeah, if you don't mind, just a quick follow up. I want to ask SeonAh a similar question. But as a quick follow up, Jim, was it -- did you approach the educational institution in that case or how did that process work just out of curiosity?

MR. AULD: You know, that's a great question. We're so closely collaborating with them through advisory and subject matter expert participation. I don't know who came up with the idea first but it manifested and it was very successful and we will be duplicating it. And we don't just do it there, we do this with partnerships all across the country.

MR. KANE: Got it. Yeah, I feel there's so much of a chicken and egg here of, you know, who is initiating some of these collaborations. We say you need to do it, right, but it's so rare that you find well, how did it start, right? Was it literally who picked up the phone and started that conversation and then resulted, I think, in these individual stories that you touched on, Jim. That it's not just about big statistics that are being reported out but it's about helping individuals and relaying that story also to your colleagues and to other perspective workers too to understand that there's a path here for these individuals.

SeonAh, obviously we have a lot of different regions going here where Arlen is more in the mid-Atlantic, Jim is in Florida I believe and then you're in Colorado. And so I'm curious with the same question of what's the biggest training challenge that you see here related in particular to reaching more and different types of workers?

MS. KENDALL: Yeah, I actually love both of the comments from Arlen and Jim in

this space. I want to go back to what Arlen said. I think access, awareness of the resource and even language barrier accesses have been one of the biggest challenges that we're seeing here in Colorado. Not only through workforce challenges but I'm leading our recovery plan and in terms of what does recovery look like in health standards. Those are access to the same resources at the same time everyone else has access I think is a really key piece of that.

The other challenge I would say and Joe, you mentioned this, is there is such a scarcity in workforce right now. You know, I think one of the biggest challenges is we've talked a lot about internships and who is going to teach, you know, and get folks excited about these careers.

One of the great programs that we're very proud of in Northern Colorado is the Northern Colorado Manufacturing Sector Partnership. Again, it was businesses, workforce, education and economic developers that businesses were leading. And what I loved about that is they talked a lot about students weren't going to get excited about these careers unless they saw it for themselves and they saw people that look like them. That, you know, had the same challenges and have overcome those challenges, those opportunities.

So our manufacturing partners, the businesses actually offered to be the instructors for that. And we talked a lot about how do we create this diversity and how do we show them that women succeed in those careers as well as people of color. And so, that's been an important part about the pairing of who that intern is with the workforce person who is in the space.

The last piece I would say specifically about women is, you know, we know COVID had a lot of challenges. One of them was around childcare. And so we've been looking at a model that Sacramento has done where they're really looking at helping upskill and reskill folks but also giving them wrap around services. So they give them a stipend so they don't have to worry about the child care or the groceries for that week. That they can really focus on upskilling and reskilling.

In this category in Sacramento, they really looked at the technology piece but we said this can be applicable everywhere and what does that look like. So those are some of those challenges that I've seen thus far in our location and I'm sure everyone else has just from the head nodding I'm seeing.

MR. AULD: And if I may, you know, before we move off of the issue of challenges, I would again let this opportunity pass. So a significant area is keeping up with technological advancements. So for example, when NextEra Energy got into wind 25 years ago, wind turbines were big mechanical things on a stick, right. So we would go to the Pep Boy and the Jiffy Lube and we'd offer a few more dollars to folks that change oil to come and change oil in our gear boxes. That was the skill set we were looking for.

Now let's fast forward to today. A wind turbine is a big mechanical thing on a stick that's complex requiring advanced skills in electrical, mechanical, instrumentation and controls, networking and so forth. So, you know, it's mission critical to have academic partners to ensure a robust tale of pipelines of well-educated and highly skilled energy professionals. But let's not be fooled. This technology is expensive and it's constantly moving so that's an area, I think, we can talk about a little bit later is the rapidly advance in technology and the challenges presented by it.

MR. KANE: That's terrific, Jim, and both you and SeonAh bring up I mean obviously tremendous points that are probably deserving of their own panels just on for an hour for technology and supportive services. I'm so happy that you brought that up as well, SeonAh, that is it any accident that women if they don't have childcare or other flexibilities, how could they even consider making certain career transitions. And we know this isn't just isolated to the infrastructure or the climate space but it's obviously true across other parts of the economy at the moment.

And I think often what I hear from a lot of regional practitioners and I say what's your biggest challenge, it's like I don't have enough flexibility or money to really even start doing this. Like I get it, you're balancing a lot of different balls in the air at any given time. You know, SeonAh, you're literally in your office right now probably ready to get on another phone call right after this.

And so, this next question kind of gets at that point of hey, you know, we're having this generational moment now where there is not hypothetically but there will be more federal resources coming around some of these issues. Via IJJA, you know, we can put Build Back Better to the side for a second but we know with IJJA, you know, while there aren't explicit workforce

dimensions in that, there are still issues around local hire, for example, project labor agreements, many other little tendrils, I think, in there.

And so I'm curious and obviously ARPA with the American Rescue Plan that states and localities are also trying to handle. So is there even the staff on hand right now to handle all this money coming in is a question. But I'm curious, you know, SeonAh, starting with you, you know, given your experience and leadership on some of these issues including with ARPA funding and potential IIJA funding coming in, what do you think needs to be done locally to maximize the reach of this funding? Who needs to be involved, what other outstanding questions come to mind for you to make sure that we're really, you know, we're harnessing this funding in the best ways we can to address some of these challenges.

MS. KENDALL: Yeah, you know, Joe, thanks for that question. I do think this is one we're discussing today even with the ARPA funding in terms of this is once in a lifetime opportunities and how do we future proof in terms of this opportunity. If we're going to be able to spend this money, how do we help and support our community in the long run.

A lot of conversations we've been having specifically with the American Rescue Plan is if we end up deciding to utilize that for capital infrastructure and opportunities there, what is that operation and maintenance going to look like in the future. Not only for the physical but also for the programming and for the support.

And so, that is one that we've been talking about locally with our school districts in the region. So not just the one that serves in Fort Collins but for the full region. Where is that market driven need and how do we help and support that but also commit to it in terms of that.

Another piece I would say is, and I believe Arlen mentioned this as well. Not everyone needs a four-year degree so how do we help and support that opportunity through being innovative about certifications and the cost and challenges that come with it but kind of swinging for the fences in this space. I think that's one we've been working locally and regionally and at the state is how do we all work together to really benefit who we're really trying to reach is our community and the support of our community and our businesses in this space.

MR. KANE: Yeah, I think it's partially, if I'm hearing you right, SeonAh, it's like building off where there already are some successful efforts happening and collaborations. But then also not shying away from the fact that they, this is a big moment, we need to think big, we need to try new things, if we don't do it now, when. I mean that has to be a question and Arlen, curious given your role obviously also in more local government, are you seeing similar types of needs unfolding, I guess, that SeonAh is referring to?

MR. HERRELL: Oh, absolutely. I mean, you know, when you talk about the funding and different ways that we're trying to expand and do additional things with this funding, the ARPA funding has been amazing for the D.C. Infrastructure Academy. You know, it was factored into this year's budget. It is a testament to the dedication that Mayor Bowser has for the D.C. Infrastructure Academy. Our budget went from \$3.2 million to \$9.4 million which includes the ARPA funding which is additional staffing which is almost doubling the number of residents that are served. Including doubling the number of residents that are a part of the solar program that is a part of DCIA and so, you know, Solar Works.

So understanding that piece and making sure that we are investing that money in the right way. Like those funds could have gone anywhere but the fact that so much of those funds were put into the D.C. Infrastructure Academy and looking at ways to bring district residents into training to go into these new jobs and to move them into the future.

That's a huge thing and SeonAh, you said something earlier that I wanted to mention because it does tie into DCI. You mentioned stipends. All of our trainings at the D.C. Infrastructure Academy, including our solar works program, pay a stipend of \$10 an hour to all participants that go through that training program. And we do also partner with our partner agencies to do kind of the wrap around services that you mentioned.

And so, you know, it's the funding piece but then it's also the businesses piece, the people who are going to be hiring these folks on the back end. The same survey I mentioned earlier, the solar survey said that the majority of minority participants did not hear about their opportunity through a family member or someone who actually worked in the company. And so,

that's a shame that there aren't people there that are kind of referring other folks of minority groups into these different opportunities.

And so, working with our companies to make sure that they understand that and that they have to look outside of their general box for finding people to come into these jobs and opportunities. And so, it's a piece of both of that and some of our funding is going into recruitment generally to bring in more folks and do partnerships with our corporate partners and they've been amazing.

MR. KANE: That's great, Arlen, and I want to turn to Jim in a second here to get more of that business perspective on this. But one quick follow up for you is you mentioned, you know, the increase in budget and the D.C. Infrastructure Academy is still pretty new, all things considered. It's only been around for a few years. You know, what sort of benchmarks are you using to measure kind of, I don't know I want to say success but like, you know, is it about the number of credentials, is it about the number of individuals who are coming, you know, interested in the academy. How are you gauging that given potentially this influx of funding?

MR. HERRELL: Sure. Our three main ways that we track are the recruitment, retention and employment. That's really what it comes down to, those three numbers. How many people came into the academy, how many are staying in the academy and then completing the academy in the different tracks and then how many people are getting employed.

And the partnerships are key. I can't stress this enough. They're key on the back end because our partners are working with these individuals from the time they walk in the door. And that's with our solar program, our partnership with PEPCO which is our utility company here in the district. They are helping with the recruitment, they are sending their folks to sit with our folks to help as we're doing the recruitment and going out in the community doing community outreach.

They actually provide a huge portion of the training that is all completely funded by them and then they are helping the participants prepare for their interviews at the back end. So that when they get opportunities to work for PEPCO and for their subcontractors. And so, this model has been amazing.

For the last seven cohorts, we've had 100 percent job placement rate for graduates of the PEPCO program. For our Washington Gas Program, the rate is about 85 percent and then for our solar program, our placement rate is well over 60 percent. But it really is at the end of the day for us, it's about how many people got into infrastructure jobs and great infrastructure jobs that are district residents and who are on the pathway to the middle class.

MR. KANE: Yeah, that's really helpful and I think that's more of what we need to see. Obviously great to hear the success in that but the actual measurement of it and we're not just saying hey we need to do this and we're -- and it's unknown how many people are even taking advantage of it. But actually having real discreet measures of how it's working or not working is just I think so helpful.

You know, Jim, turning to you then on mentioning both SeonAh and Arlen of obviously business involvement, employer involvement in all of this. What are you hoping to see, you know, especially at a local regional level given this moment that we're in right now.

MR. AULD: So are we going to add a couple extra hours to this? Technology is advancing in the digital age at an unprecedented rate. So it's mission critical for funding to support infrastructure. You know, it's a daunting challenge for community colleges and technical colleges to keep up with this advancing technology. So it's mission critical for colleges to keep up with this technology. It's absolutely critical.

So, for example, around six years ago, I was at Texas Tech with some of our control managers and one of them said to me, Jim, when you're working with colleges and universities, you need to emphasize the importance of SCADA. I said wow, that's a great idea and I will certainly do that but first you have to give me SCADA (inaudible). So he proceeded to explain to me what Supervisory Controls and Data Acquisition is.

So SCADA drives the why, would and where we conduct maintenance. It really drives our industry. Not only ours but any manufacturing places that are using these controls, right. So in real time, our engineers and our technicians are responding to data. So the importance of this data science cannot be overstated. SCADA is an example of critical infrastructure training

materials and trainers and equipment and so forth that's needed to help keep pace with all this advancing technology.

So and believe me, I serve on advisory committees and I work with colleges all across the country. It is a daunting, daunting challenge to keep up with this technology. So that's an area that I hope as we look to our buckets of money so to speak that we can really look at the importance of our training equipment and keeping up and keeping pace with this technology.

MR. KANE: Absolutely. And it's probably, Jim, not just like a youth workforce issue of like younger workers coming into the space but existing workers too of keeping up with the changing nature of work and the new technologies that are coming online. Making sure that everyone is equipped and ready, right, to take on these tasks.

MR. AULD: On that just quickly, you are so correct. Because you think about it if you've been in industry for 20, 30 years, you've got one foot in the analog age and another foot in the digital age. So think about the upscaling that that requires.

MR. KANE: That's right. And I think it's easy to look at well we need a new generation, it's only for new workers and it's a sum of a huge group of workers existing in this space who are valued, have tremendous skill sets and experience and need to continue to be leaders here too and understanding that they continue to have a role to play.

I know we're almost -- we're at time for Q&A actually for the audience but I'll take moderators prerogative. I have one more question I want to just as sort of a lightening round here for maybe a minute each of a response. But we're going to be talking in a few minutes to a representative in one of the federal agencies. In this case, it will be Department of Energy. We know there are other agencies who probably are part of these conversations, Department of Transportation, EPA, et cetera.

You know, we kind of gave that picture from the regional standpoint of what needs to happen but what are you hoping to see from federal agencies from Washington in this implementation phase that we're in. Is it about better guidance, is it sharing a best practice is often something we hear, is it something else. I guess this is kind of for once you have a wish list of what

do you hope to see coming out of some of these agencies. And I'm curious and I just leave it open to all of you, whoever wants to jump in first of kind of what do you hope to see from some of the federal agencies on this.

MS. KENDALL: I'm happy to go first. I think a couple of things. Absolutely in terms of the rulemaking, reducing the barriers I think that have hindered a lot of the smaller employers in workforce opportunities in that space. And Joe, as you mentioned, I think we've been going through this with the American Rescue Plan, you know, the CBRF funds, all of those things. The federal agency has seen some amazing programs and project across the nation and being able to share that with us, even those they did not fund, as opportunities for us to be more innovative in this space.

MR. HERRELL: Yeah, I would definitely piggyback on that and say from my perspective, I would say obviously funding, more funding. You can never have enough to do something like this. But I think also expanding like the definition of what a federal internship is to include some more of the green jobs and things like that. And then also, we're obviously working with the Department of Education and local education to really push that these are opportunities for folks that are younger folks and teach these kinds of programs at a younger age.

MR. AULD: Yeah, and I can't overstate the importance of federal funding for craft technical training. You know, we look to our academic partners to provide well-educated, highly skilled energy professionals. So funds for training infrastructure is critical and by infrastructure, I mean training equipment, you know, that lab equipment, that sort of thing. You know, fancy buildings and all that are nice but we need things to train on.

MR. KANE: Yeah, that's helpful. And I think having those discrete again kind of asks is what federal agencies hopefully are looking for too. Because there is a lot happening in real time right now, there's a lot of money but it isn't infinite. And if we are going to, we collectively at a federal, state and local level are going to maximize this funding, we have to be really targeted and intentional about what we're going to do with it. And where those pain points are I think to target some of these hiring, training and retention strategies.

I wanted to turn then in the 5 minutes that we have left before we turn to the fireside chat. I wanted to turn to some of the audience Q&A and we received I mean literally dozens of amazing questions. So I'm going to try to merge some of these just to get a few of them answered.

One bucket of questions that we've received a lot on is youth workforce, you know, 16- to 24-year-olds in particular but also just transition and fossil fuel workers, for example. And so, we always talk about the promise of the transition to a cleaner economy, what does that mean for workers who may be in positions right now earning certain wages, is there a place for them. So I'm curious, again, opening it up to any of you if you can touch on how are you intentionally thinking about both kind of that youth workforce angle but also in particular this just transition and kind of existing workers including those who might be in the fossil fuel industry. Jim, it looks like you're unmuted.

MR. AULD: Yeah, and that's a great question worthy of an hour. So let me focus on the transition. Because we're certainly sensitive to this area, the transition of sort of a fossil-based energy infrastructure to more renewable and so forth. So we're certainly working in our states where they're impacted in that space supporting STW, Straight to Work initiatives.

So for example, in one state particularly hit by decommissioning of coal plants and so forth, we did some analysis and found a significant need for truck drivers in that area. So we helped, we supported some Straight to Work initiatives for displaced workers to transition to that. We helped support some training to transition fossil workers to become wind technicians and so forth.

So it's very important that we do that and be cognizant of that. You know, in the wake of technological advancement, there are all these people that are impacted by that. We can't marginalize that. We have to be cognizant of it and take action on it. I already spoke a little bit about our STEM camps so I'll defer that one over to my colleagues but happy to circle back if you wish.

MR. KANE: Yeah, I appreciate that, Jim. SeonAh or Arlen?

MR. HERRELL: Yeah, I'll jump in for just a quick second. You know, we really do target all age groups at the D.C. Infrastructure Academy but I will say a large percentage of our participants are in that earlier age group. And some of the ways and things that we've seen that are changing that are that, you know, the requirement, the federal requirement or the state lines requirement for CDL license going from 21 to 18, that's helpful.

We're talking about green jobs and that doesn't necessarily translate all the way to driving a big truck across lines but just a regular CDL. Someone under the age of 21 is not as a drawl for an employer if they can't drive across state lines on even just a regular truck to do some work or do repairs on something. So those requirements being kind of shifted that helps for us to recruit at the younger ages.

You know, getting into schools early. Our solar works program has a youth solar program every summer where we're training youth workers to do solar installations and repairs. So we're really trying to find different ways to make sure that people are engaged in the youth.

MS. KENDALL: And I would just add absolutely. I think it's one thing to get the youth really excited about these types of careers. What we've found especially with our manufacturing partnership, we started to see a lot of excitement for our youth. What we needed to do was have a conversation with the parents as well.

So we started to offer tours in some really cool manufacturing sites in our community and had parents and students come and talk about how these are great careers. That it's not just a job, that it's opportunities in this space. And I think that was the mind shift of we can get the student as excited as possible but if mom and dad continue to say that's not what we want you to do, right, there's only so much push back. And so getting parents excited about that opportunity as well.

And then in terms of transition, we've been talking about that it's a huge need and what does that look like. And I think that goes with the technological training, the opportunities and being able to show folks career ladders and opportunities and moves in that space.

MR. KANE: Go ahead, Arlen.

MR. HERRELL: Thank you, I just wanted to make sure I added one more thing. You know, one of the things you talked about is this transitioning of people from job to another job. Another two programs that are under my purview on the business engagement side is we have our work experience program as well as our on the job training program. And both of those programs offer different levels of funding to upscale and train people for jobs. And we provide that funding directly back to the employer. So it's really helpful for folks who are trying to get like a young person, 18 to 24, and train them up into a job, you know, but may be strapped for the funds to do that at the time.

MR. KANE: I appreciate all the insights that you three have provided and I take heart to what Jim you said almost in every answer you gave of like we could go an hour on every single one of these. It's a big issue area, right, but it's an important issue area and I at least knew going into this, we're still scratching the surface I think of, you know, some of the barriers here that people are facing.

But also, still some of the opportunities that are in front of us and there's a lot of work to do, right, both for workers to do, I mean, in these issues but even for practitioners such as yourselves to helping, you know, more and different types of individuals to pursue careers in this space.

I always go back to a word that I've heard a lot in terms of infrastructure workforce issues. It needs to be a career of choice, right, it doesn't need to just be I fell into it or I heard about it from someone by word of mouth. It really needs to be a career of choice and if it is a career of choice how are all types of individuals able to pursue that, right. Do they have the flexibilities and do they understand what these careers offer.

So I think there's a lot of good conversation still to come on this. I apologize to the viewers for not getting to more of the questions, they were really tremendous. I'll just say that we're hoping to cover some of those in future blogs and other conversations. So those are not going to fall on deaf ears and really do appreciate the interest and the engagement on those.

So SeonAh, Arlen, Jim, you know, again, really appreciate your time, insights. I found this conversation to be exactly what I was looking for, really tremendous and helpful and so

thanks again for joining today.

MR. AULD: My pleasure.

MR. HERRELL: Thank you.

MS. KENDALL: Thank you.

MR. KANE: Thanks all. So we're going to turn now to the fireside chat which is going to be led by Becky Klein-Collins who is Vice President of Impact at CAEL with Betony Jones who is the advisor for Workforce at the U.S. Department of Energy. Focusing again on some of these federal issues that came up and other issues I imagine that are top of mind for many views. So Becky, the baton is yours.

MS. KLEIN-COLLINS: Thanks for that handoff, Joe, I appreciate it. And Betony, if you're joining us, I just want to say that we're really glad to have you here today to provide the federal perspective on the issues that we've been talking about for the last 45 minutes or so. I'll wait for you to join on screen.

MS. JONES: Hi.

MS. KLEIN-COLLINS: Glad you're here. So Betony, we've just heard from an employer and an economic development agency and a local government training agency on what they're seeing in terms of, you know, changes in a growing industry around climate change mitigation. Lots of new job creation, new opportunities for talent development. And we're really curious to hear, you know, from the federal agency's perspective at your role at Energy.

What kind of discussions are you all having within the Department about the issues of workforce development, talent pipelines, maybe even the availability of jobs and also within the renewable energy and climate related solutions. And then just keep in mind too that we've heard from our audience that they're very interested in the equity implications for this and how to make sure that those opportunities are extended to underserved populations, women, people of color. So if you could speak to that, that'd be great. I can't hear you.

MS. JONES: Is that working?

MS. KLEIN-COLLINS: Yes.

MS. JONES: Great, thank you. Becky it's nice to meet you. Thank you to the Brookings Institute for hosting this. Apologies for the technical difficulties. That was a big question that you posed but let me just kind of run through a little bit of how we are thinking about workforce issues at DOE.

First, we're just very focused on supporting the President's priorities around both expanding union jobs and removing barriers to good jobs for those long excluded from quality career track employment. So those are two high priority goals that are really informing a lot of our thinking. We're very much trying to systematize our workforce development activities and align with the rest of the federal infrastructure on workforce development, including Department of Labor and Department of Education and really figure out and zero in on our value in that space.

We're working with the Department of Labor to expand and modernize registered apprenticeships in occupations necessary for clean energy deployment. So much climate work, in particularly a lot of the work funded in the bipartisan infrastructure law is in the construction sector.

In apprenticeship, union apprenticeship is a really elegant model for making sure that we can supply the labor market with skilled and trained workers.

It's nimble, apprenticeship is nimble in that it can expand and contract relative to demand and there's usually more folks interested in apprenticeship programs than there are openings. So with the expansion of infrastructure spending, that will open up more apprenticeship's slots for more people. So that's really valuable and something we're working on.

And in general, I would say we're really trying to support broad, occupational training with industry recognized credentials that transfer between employers and to try and do that across the occupations required for clean energy deployment. And along those same lines and kind of building on what Arlen from D.C. was commenting on in the earlier panel, supporting quality pre-apprenticeship partnerships that provide wrap around services, support services and really try to reduce those barriers to employment.

So the partnership thing that was commented on in the earlier session is super key to have employers at the table, training providers at the table, workforce development boards, labor

unions and equity oriented community based organizations that can really support service delivery to the garget population.

And then on the STEM side, we're really expanding our partnerships with HBCUs and minority serving institutions. Leaning in there are advanced manufacturing office in the Office of Energy, Efficiency and Renewable Energy is piloting a new approach there. On the manufacturing side, manufacturing is an area where we hope to see really the job growth if the Made in America provisions work and the renewed kind of investment in revitalizing domestic manufacturing works, there should be job growth there.

And we really need to look at things like sector strategies to identify training standards that would be accepted by multiple employers in an industry. So for things like battery manufacturing, what are the training standards that are going to be needed to develop that workforce and how can we support that. So that's just a snapshot of the few of the things that we're thinking about.

MS. KLEIN-COLLINS: Some of the questions we got in advance were looking at this question of transitioning the existing fossil fuel workforce into different kinds of jobs or getting them the training they need to do things like building the smart infrastructure that's being planned.

I wonder if you could talk a little bit about, you know, what the department is thinking about those kinds of transitional training and talent development needs. And also, you know, if you can point to some examples of where that's been done really effectively.

MS. JONES: My dog decided to be very vocal right at this moment. I apologize for that. As was mentioned on the earlier panel, there is so much, the pace of technological development is so rapid. It's an interesting space for DOE because traditionally, we've been an RND organization, really focused on supporting the development of new technology and the demonstrations of that.

I think one thing that we can probably continue to do better is sharing that information on emerging technologies with workforce development providers, including labor unions who are really rather exceptional at upscaling the incumbent workforce and making sure that their members are trained with the most up to date technologies. So again, we see labor unions as

really important partners in this space.

We also have an office of artificial intelligence that's really looking at how to incorporate virtual reality into training and there's a lot of that going on within the Office of Energy Efficiency and Renewable Energy too. So upscaling the existing workforce and making sure that we're keeping pace with technology is something like that's one of those value adds that I was referring to earlier for DOE.

MS. KLEIN-COLLINS: Well, we're sort of at the end of our time but I wondered if we could squeeze in just one more question, particularly about IIJA and the opportunities that that is providing for thinking about and supporting these kinds of jobs.

I'm wondering if you could share a little bit about how you are planning to work with other agencies. I know you talked about working with them on the design of apprenticeship programs but I was wondering if you'd talk a little bit about that piece of legislation in particular.

MS. JONES: Yeah, so we're generally referring to it as the bipartisan infrastructure law or bill. But DOE has, I think, 72 provisions with that, most of which are for new programs to support implementation. And so, we're really looking within each of the provisions, what does workforce need and how can we support that.

There are a few provisions in there for DOE that are really specific to workforce development. The Build Back Better legislation has quite a lot. Like the bulk of the funding for workforce development is in that bill. And a lot of that would go to the Department of Labor so it would really support this partnership that we're working on with DOL and the other agencies.

But we're really trying to be creative and do what we can. One of the things that's really useful is on the construction side, the David Bacon requirement because that sets a floor for wages that signals to the labor market that we will need a skilled and trained workforce to engage on those projects. And that's the kind of signal that you can then pull workers into the labor market, open up spots in apprenticeship.

And so, we're looking at things like apprentice utilization on infrastructure projects and other local hire and other ways to support the underrepresented workforce.

MS. KLEIN-COLLINS: Well we are definitely at the end of our time now and thank you so much for joining us today, Betony. It's been really informative and, of course, it leads us to think about a lot of different new questions about climate related jobs and energy and other sectors. And I'd really like to thank all of our panelists today who contributed to this conversation, it's been wonderful.

On behalf of CAEL and Brookings Metro, I would like to thank everybody here today, our panelists and also our viewers here today. And hope we can continue this conversation in the future.

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