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TITLE II: 21ST CENTURY WORKFORCE

THURSDAY, APRIL 23, 2015

House of Representatives,

Subcommittee on Energy and Power

Committee on Energy and Commerce

Washington, D.C.

The Subcommittee met, pursuant to call, at 10:05 a.m., in Room 2123 of the Rayburn House Office Building, Hon. Ed Whitfield [Chairman of the Subcommittee] presiding.

Members present: Representatives Whitfield, Shimkus, Pitts, Latta, Harper, McKinley, Johnson, Long, Ellmers, Flores, Mullin, Hudson, Rush, McNerney, Green, Doyle, Castor, Sarbanes, and Loebsack.

Staff present: Nick Abraham, Legislative Associate, Energy and Power; Gary Andres, Staff Director; Charlotte Baker, Deputy Communications Director; Will Batson, Legislative Clerk; Leighton Brown, Press Assistant; Allison Busbee, Policy Coordinator, Energy and Power; Patrick Currier, Counsel, Energy and Power; Tom Hassenboehler, Chief Counsel, Energy and Power; Brandon Mooney, Professional Staff Member, Energy and Power; Caitlin Haberman, Democratic Professional Staff Member; Rick Kessler, Democratic Senior Advisor and Staff Director, Energy and Environment; and John Marshall, Democratic Policy Coordinator.

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Mr. {Whitfield.} I would like to call the hearing to order this morning. Today we are having a hearing on a draft bill, Title II of the 21st Century Workforce, and we have a distinguished panel of witnesses with us this morning. And I am not going to introduce you now, but I am going to introduce you just prior to your 5-minute statement. But we do thank you for joining us this morning. And I would like to recognize myself for 5 minutes for an opening statement.

First, I want to thank Bobby Rush as well as Bill Flores, Gene Green, and Richard Hudson for sponsoring the bipartisan discussion draft that we will be talking about today entitled the 21st Century Workforce. This discussion draft will become part of our larger energy legislation that we will be rolling out in the weeks ahead. I have already complimented you, Bob, and thank you for coming.

As we all know, the domestic energy sector is undergoing dramatic changes. Thanks to American innovations, our decades of declining oil and natural gas production have given way to tremendous increases in output. The Energy Information Administration recently projected that the United

States will eliminate net energy imports by the year 2030. This abundant and affordable energy is sparking new manufacturing activity in the United States.

America's energy and manufacturing renaissance is also leading to a jobs renaissance. Energy and energy-related employment has been one of the few economic bright spots in recent years, everything from those employed discovering and producing energy to those constructing and operating the infrastructure to transport it, to the new factories that are powered by it.

But America's energy transformation has some problems because we are now finding that we need more trained workers in these areas, skilled workers. So there are many opportunities out there, and this is what this legislation is all about, trying to assist in the development of these new job opportunities.

As you know, we have also had a lot of people lose their job as we make this transformation in energy. Certainly, in the coal sector they have been hit very hard. And so we have a great opportunity here. I know the Department of Energy has already expressed an interest in developing a jobs

program, but we feel like it is important to provide some guidance in that, and as I said earlier, Bobby Rush has been talking about this for some time, and actually, his draft was the basis for this Title II.

So we have a unique opportunity here in our broader energy bill to address this issue, and that is what we hope to do. And we hope that your testimony will provide us some insights on your thoughts on this important subject.

[The prepared statement of Mr. Whitfield follows:]

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Mr. {Whitfield.} And with that, at this time I would like to recognize the gentleman from Illinois for his opening statement.

Mr. {Rush.} I want to thank you, Mr. Chairman, for holding this important hearing, and I must commend you and your staff for working with my office on the 21st Century Workforce bill. That is the focus of what we will be discussing here today.

Mr. Chairman, I hope that the same spirit of goodwill and negotiations that the minority and the majority sides that have displayed in working on this discussion draft can be carried forth as we continue to work on the remaining sections of a broader bipartisan comprehensive energy bill. The Nation is in need, waiting for it, and a Nation in need deserves a comprehensive energy bill.

I am also optimistic knowing that both sides continue to work diligently at a good faith on hammering out some of the more contentious outstanding issues so that hopefully we can bring forth a bill that helps move our Nation's energy policy forward and restores this subcommittee's reputation as a true

model of what bipartisanship can accomplish.

Mr. Chairman, the 21st Century Workforce legislation addresses an issue that is neither partisan nor bipartisan, but rather it is non-partisan because this is an issue that benefits communities, benefits industry, and benefits the overall American economy. This bill brings together government agencies including the National Labs, the energy and manufacturing industry, unions, schools, community colleges, and universities among others and promotes collaboration to make sure that we are tapping into a wealth of under-utilized talent and training and preparing workers for the energy and manufacturing jobs both presently and of our future also.

Mr. Chairman, this bill is important because it matches up the needs of an industry and a willingness and able workforce, and in the process it helps start new cycles of hope, new cycles of opportunity for groups who have in many cases been overlooked and underserved. In fact, Mr. Chairman, it is my hope, my sincere hope, that if and when this bill is enacted, it would be instrumental in helping to create individuals with similar stories so that those we hear

from today, their stories will be repeated time and time and time again, stories I might add like Mr. Wilson's from the Englewood community that is located in my district in Chicago, Mr. Wilson, who beat the odds and turned his life into an inspirational profile that can serve as a motivation to this Nation and to this Nation's young men all across this Nation.

Mr. Chairman, this legislation can help to open new pathways to jobs, new pathways to careers, new pathways entrepreneurial opportunities for women, for minorities, and for our veterans while also helping to move our overall economy forward by promoting STEM education as well as developing educational guidelines for institutions at all levels, from elementary to post-graduate university programs. This bill would help to ensure that we are training individuals with the skills necessary to work in the energy and manufacturing-related jobs including energy efficiency, energy conservation, from blue-collar workers to managers to supervisors up to and including new entrepreneurs and business creators.

So Mr. Chairman, again, I applaud you for holding this

hearing today as well as working with me to make this issue a priority in what we hope will be a broader bipartisan, non-partisan energy and infrastructure bill. I look forward to engaging the witnesses that we have here today, and I welcome the witnesses. And with that, I yield back the balance of my time.

[The prepared statement of Mr. Rush follows:]

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Mr. {Whitfield.} Thank you. The gentleman yields back the balance of his time. Mr. Upton is not here. Does anyone on our side of the aisle, they would like to take any of his time. Okay. I see the gentleman from Texas is recognized for an opening statement.

Mr. {Green.} Thank you, Mr. Chairman. I want to thank you and the ranking member for holding the hearing today, and I want to thank our witnesses for coming and testifying today. Specifically, I would like to acknowledge Dr. Ramanan Krishnamoorti, the Chief Energy Officer at the University of Houston. Being a graduate of University of Houston College of Business and going back there to law school, I can't say too many nice things about it because it gave me the education I have. And what Dr. Krishnamoorti and his colleagues are doing in the energy field are amazing. I stated before; we can't say it enough. Texas is leading the Nation producing results. This time it is our energy workforce development. Thanks to the University of Houston, San Jacinto Community College, ExxonMobil, and other stakeholders, Houston is launching a pad for efforts like

these contained in this legislation today. The University of Houston partnered with the Energy Institute High School to engage high school students and get them interested in working in the energy field. The Texas Gulf Coast Community College Consortium is addressing the workforce need of our industries. The Community College Petrochemical Initiative is a public/private partnership that is unique to the industry. Through programs like the University of Houston Partner, the TGCCCC and CPI, industry job opportunities become realities.

I look forward to working with my colleagues on this legislation to ensure that success that we have in East Harris County where I represent the refineries and chemical plants continues and is duplicated nationwide. And I yield back my time. Thank you, Mr. Chairman.

[The prepared statement of Mr. Green follows:]

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Mr. {Whitfield.} The gentleman yields back, and that concludes the opening statements. So now we will get to our panel of witnesses. Once again, thanks for being with us this morning. I will introduce you individually and give you each opportunity for 5 minutes for an opening statement.

So our first witness is Dr. Tracy Brundage who is the Vice President of the Workforce Development and Continuing Education at Pennsylvania College of Technology on behalf of Shale NET. So Dr. Brundage, you are recognized for 5 minutes, and the little red lights will come on when your 5 minutes is up. There are two little boxes on the desk, but we do look forward to your testimony. And thanks for being with us, and just be sure to turn the microphone on so we all can hear.

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^STATEMENTS OF TRACY BRUNDAGE, VICE PRESIDENT, WORKFORCE DEVELOPMENT AND CONTINUING EDUCATION, PENNSYLVANIA COLLEGE OF TECHNOLOGY, ON BEHALF OF SHALE NET; RICK JARVIS, VICE PRESIDENT OF FIELD CONSTRUCTION, MORROW-MEADOWS CORPORATION, ON BEHALF OF NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION; RAMANAN KRISHNAMOORTI, CHIEF ENERGY OFFICER, UNIVERSITY OF HOUSTON; MONICA MARTINEZ, PRESIDENT, HISPANICS IN ENERGY; AND CHARLES WILSON, SENIOR REACTOR OPERATOR TRAINER, MANAGING PARTNER, CW CONSULTING GROUP, LLC

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^STATEMENT OF TRACY BRUNDAGE

} Ms. {Brundage.} Good morning. Thank you, subcommittee members, for the opportunity to speak about the need for workforce development and training in energy and related industries. My name is Tracy Brundage. I am the Vice President for Workforce Development at the Pennsylvania College of Technology, a special mission affiliate of Penn State committed to applied technology education.

My testimony today will focus on Shale NET, a

partnership of training providers, economic development, the public workforce system and employers who responded to the call from the energy industry for a trained workforce.

When we ask executives in the gas and oil industry what keeps them up at night, many will respond by expressing their concerns regarding the great crew change. The energy industry is facing a mass exodus of talent and experience. In order for the industry to succeed in the 21st century, it must continue to recruit and retain talent from a more diverse labor pool. The industry must be prepared for the inevitable departure of a large number of workers who are retiring.

To address these challenges, industry, government, the public workforce investment system, economic development agencies, education, and training providers must create the kind of educational infrastructure that will provide a qualified workforce the industry needs. Our work, through Shale NET, over the last several years, has focused on building this infrastructure.

In 2010 Penn College, Westmoreland County Community College in Pennsylvania, and 18 other training providers

across Ohio, Pennsylvania, West Virginia, and New York came together to create Shale NET. We were awarded $4.96 million from the U.S. Department of Labor's Community-Based Job Training Grant Initiative to develop and implement a 3-week training program that exposes students to expectations of the industry related to job readiness skills, safety, and technical awareness.

The curriculum was designed from input from industry, stressed consistency of content, and awarded competency-based in industry-recognized credentials. Though the program was open to all, special efforts were directed to recruit veterans, the unemployed, and underemployed. The results for Shale NET are stellar. Over 14,000 individuals explored the Talent Match Web site which provides realistic job profiles of energy occupations and information about the industry. Over 1,100 completed practical training, and almost 3,500 obtained job. The placement rate was 79 percent, and retention three quarters after placement was 82 percent.

In October 2012, Shale NET was awarded a U.S. Department of Labor Trade Adjustment Assistance in Community College and Career Training, known as TAACCCT, Round II grant for $14.96

million which combines the short-term programming of the initial Shale NET grant with stackable college credit offerings.

Shale NET is a best-practice model that can be deployed and implemented in other areas because the curriculum is competency-based, developed with input from industry, consistent, easily replicated, and flexible, dependent upon industry needs. The success of Shale NET is a direct result of strong partnerships with employers and trade associations, workforce investment boards, one stops, economic development agencies such as the Pittsburgh-based Allegheny Conference on Community Development, and local governments who share a common desire to place qualified candidates with employers and family-sustaining careers.

Several innovative strategies are being deployed by Shale NET to bring blended technical curriculum to remote areas, veterans, and underserved populations. One strategy uses state-of-the-art 3D immersive technology and artificial intelligence to assess and teach more advanced technical skills related to natural gas and oil production in a simulated environment. These methodologies create enormous

cost savings for educational institutions, embrace leading edge technology honed by the U.S. Department of Defense to train and assess competencies and make capacity-building more feasible and efficient.

For future programs that are introduced to meet energy workforce needs, there are several factors that are imperative: to establish public/private partnerships that become the backbone of developing a broad array of training options across the geography of the United States; to target federal funding in promoting regional collaborations that align with industry's multi-state operations; and to direct funding where the impact is greatest to support energy training initiatives that secure jobs for America's workforce.

Our job is not yet done. Thanks again for this opportunity to speak on Shale NET's behalf.

[The prepared statement of Ms. Brundage follows:]

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Mr. {Whitfield.} Thank you, Dr. Brundage. And our next witness is Dr. Rick Jarvis who is Vice President of Field Construction, Morrow-Meadows Corporation, on behalf of the National Electrical Contractors Association. So Mr. Jarvis, you are recognized for 5 minutes.

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^STATEMENT OF RICK JARVIS

} Mr. {Jarvis.} Thank you, Chairman Whitfield, Ranking Member Rush, and members of the subcommittee for inviting me here to testify today at this important hearing. On behalf of the National Electrical Contractors Association, the nationally recognized voice of the electrical construction industry, thank you for holding this important hearing regarding the workforce development needs of the energy and manufacturing sectors.

My name is Rick Jarvis, and I serve as Vice President of Field Construction for Morrow-Meadows Corporation, a premier electrical and data communications contractor on the West Coast. I am pleased to be here on behalf of the National Electrical Contractors Association, also known as NECA. NECA is comprised of over 60,000 electrical contracting firms employing over 750,000 electrical workers and producing an annual volume of over $130 billion.

Growth and diversification in the energy economy have created unprecedented opportunities for the electrical

construction industry. A record 60 percent of electrical contractors are currently performing work on energy construction projects. Unfortunately, the availability of skilled labor and an aging workforce threatens our ability to continue to meet the demands of the market.

According to the Bureau of Labor Statistics, the anticipated number of job openings for electricians due to growth and retirement from 2012 to 2022 is roughly 224,000. Recruiting new talent to our apprenticeship training program is crucial to the success and future of our industry, and we are working hard to recruit new talent to join the trade.

For over 70 years, the electrical construction industry has been investing $100 million annually in its successful privately funded apprenticeship and training program. This joint venture between NECA and the International Brotherhood of Electrical Workers, the IBW, which I am still a member, gives participants the opportunity to learn the electrical industry while getting paid and without a college education. We are proud of the opportunities offered by our apprenticeship training programs around the country.

I for one am an example of what an apprenticeship

program can do for a person. After high school I worked several different jobs before entering a 4-year IBW-NECA electrical apprenticeship program in 1982. During the course of my training, I earned college credits and learned the difference between a job and a career. After completing my apprenticeship, I rose from journeyman electrician to foreman, then to general foreman. In 1991 I was promoted to the general field superintendent for the Morrow-Meadows San Diego branch office. Four years later I was promoted again, this time to the general field superintendent of their corporate division in Los Angeles, California, where I now hold the position of Vice President of Field Construction.

The IBW-NECA apprenticeship program has trained over 375,000 electricians like myself including an increasing number of minorities, women, and veterans, a focus that we have today. Attracting young talent to this program and others like it is key to meeting workforce demands across the energy sectors.

NECA is proud to support this committee's discussion draft and the committee's efforts to address the workforce development needs of the energy industry. I hope my own

experience in this apprenticeship program can serve as a testament to the opportunities for upward mobility that learning a skilled trade can present. We are hopeful that as the Federal Government works to address the workforce development needs on the energy and manufacturing sectors, it assists our industry by actively promoting apprenticeships as a well-paying career option.

We appreciate the committee's interest in collaborating with electrical contractors as mentioned in the draft language. Our training programs are all about skill development for the 21st century workforce. I am happy to take any questions, and we look forward to continued work with this committee as it moves forward with this worthwhile process. Thank you.

[The prepared statement of Mr. Jarvis follows:]

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Mr. {Whitfield.} Well, thank you, Mr. Jarvis. And our next witness is Dr. Ramanan Krishnamoorti who is the Chief Energy Officer at the University of Houston. And I am excited you all have a Chief Energy Officer down there at the University of Houston. But thanks for being with us, and you are recognized for 5 minutes for an opening statement.

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^STATEMENT OF RAMANAN KRISHNAMOORTI

} Mr. {Krishnamoorti.} Chairman Whitfield, Ranking Member Rush--

Mr. {Whitfield.} And be sure to bring the microphone up close there.

Mr. {Krishnamoorti.} My name is Ramanan Krishnamoorti, as the chair recognized. I am the Acting Vice President and Vice Chancellor for Research and Technology Transfer and the Chief Energy Officer at the University of Houston. The University of Houston is a leading Tier 1 public research university that offers undergraduate and graduate programs on campus and online to more than 41,000 students. The University of Houston is a designated minority-serving institution, a Hispanic-serving institution and was rated the second-most racially and ethnically diverse university in the Nation by U.S. News & World Report in 2010.

UH takes full advantage of our location in Houston, the energy capital of the world, to offer undergraduate, graduate, and certificate programs in all facets of the

energy industry. As the committee considers ways the Federal Government can foster education and training for energy and manufacturing jobs, I am pleased to speak with you today to share some of the innovative ways the University of Houston is working to train our workforce for high-skilled jobs in the energy industry.

The oil and gas industry in particular is experiencing a massive misalignment of workforce needs and student education. It is a significant challenge to recruit and retain a qualified, stable workforce. The technology and skill requirements are rapidly changing in the industry. It is estimated that the skills of oil and gas workers become obsolete after 3 to 5 years, and the much talked-about crew change of the baby boomers is happening now and it is significantly impacting the industry's workforce.

So what does this look like? Between now and 2017, there is a projected shortage of 75,000 mid-skill workers and 10,000 highly skilled workers, and these numbers are expected to double over the next 5 years. That is a shortage of 20,000 highly skilled workers. We need to rapidly upscale the mid-skill workers to meet this deficit.

The University of Houston has, over the last 7 years, embarked on a transformation to become the energy university in research, technology transfer, and most importantly, student education. We have already developed successful programs at the undergraduate level, like petroleum engineering, and at the graduate level, such as the Nation's first and only subsea engineering program.

Our success is due in large part by how we have engaged the industry, K through 12 education such as the Energy Institute High School in the Greater Houston area, and community college education including the nine community college systems in the Greater Houston area. Through advisory boards and adjunct faculty, we have developed strategies to address actual workforce realities, to find quick wins for continued business engagement, and to recruit and retain women and minority students. One of these strategies is a focus on upscaling through certificates and stackable credentials.

So how does stackable credentials meet workforce needs? Two ways: speed. It accelerates skill enhancement of workers and their re-deployment in areas of critical need.

Second, volume. The stackable format provides rapid portability and scalability of the program. Basically, it is more high-skilled workers in less time.

The stackable credential model has seen success in other areas of higher education, like healthcare. By stacking a series of certificates, a professional gains higher level credential or degree to advance their career. Our innovation is to apply this model to the energy industry's needs.

UH has developed stackable credentials that can quickly scale up energy workers to earn undergraduate degrees in organization, leadership, and supervision. This program is competency based and requires, one, the completion of two out of three certificate programs in advanced petroleum technology, advanced process technology, and advanced safety technology; and second, the completion of two certificate programs in project management and organizational leadership and supervision.

To launch this program, we thought creatively and strategically about what population to target. One of the most significant needs in the Greater Houston area is the scaling up of mid-skill workers in the process technology

industry where over the next 3 years over $120 billion of investment will take place to grow the infrastructure and adapt to the cheap availability of unconventional oil and gas. The first cohort in the advanced process technology certificate in Fall 2015 will demonstrate the scalability and portability of our upskilling program and will let the Energy University build on the significant achievement of the entire education pipeline including K-12 education and community college education.

The Committee's focus on workforce development in the energy sector is well placed. We are very proud of the initiatives the University of Houston has undertaken in our region and are encouraged by the Committee's efforts to consider ways to scale workforce development programs in the energy sector on a national basis. I thank you for the opportunity to provide testimony today and look forward to answering your questions.

[The prepared statement of Mr. Krishnamoorti follows:]

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Mr. {Whitfield.} Thank you very much, Dr. Krishnamoorti. Our next witness is Monica Martinez who is the President of Hispanics in Energy. So thanks for being with us, and you are recognized for 5 minutes.

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^STATEMENT OF MONICA MARTINEZ

} Ms. {Martinez.} Thank you, Mr. Chairman Whitfield and Ranking Member Rush and members of the subcommittee. I want to thank you for the opportunity to testify today on Title II: 21st Century Workforce.

Mr. {Whitfield.} Would you mind just pulling the microphone a little bit closer?

Ms. {Martinez.} Oh, sure. I commend each of you for taking the time to focus on ensuring that America has a strong, diverse energy and manufacturing workforce. It is a privilege to be here today to support the bipartisan draft legislation that is aimed at accomplishing this critical priority.

I am Monica Martinez, President of Hispanics in Energy. Hispanics in Energy is a non-partisan, non-profit organization whose mission is to engage Hispanic and other diverse communities in our Nation's energy policy dialogue and workforce. And thank you, Congressman Flores, for being a continued supporter.

Our population is over 54 million, making people of Hispanic origin the Nation's largest ethnic or racial minority. At 11.9 million Hispanic households, we comprise roughly 10 percent of our Nation's total households. For 2012, the median income of Hispanic households was $39,000 whereas the median income of U.S. households was $51,017. The poverty rate among Hispanics is roughly 25.6 percent, whereas the national poverty rate is at 15 percent.

I mention these figures to make sure I am illustrating the disparity that exists. But I also find them useful in the debate when we discuss jobs and economic opportunity. The best way to help alleviate poverty and to grow household income is to expand the outreach and availability of good paying jobs. And I believe that for Hispanics, African Americans, American Indians, women, and all Americans, access to economic opportunity in the energy field can be crucial for helping boost those earnings and bring about greater standards of living.

We have heard about the shale revolution and even more so even when we talk about green energy economy. We know that there are job opportunities available. Recent reports,

even ones by HIS, project that there are up to 408,000 jobs available that can be held by African Americans and Hispanics by 2030 in the oil and gas sector. IHS estimates that 63 percent of all job opportunities will be blue collar jobs. This is a truly bipartisan and energy technology neutral opportunity. We know that even the green sector is growing, and they are moving as well. And I think we need to take advantage of it.

Hispanics in energy over the last year has held community conversations across the country discussing this very opportunity. From that effort we have learned several things. General dissemination of energy opportunities to a variety of stakeholders is key.

Recent research indicates that the number one obstacle to women considering employment in the oil and gas industry is lack of awareness and understanding of the job opportunities and career development available. Just by outreaching and making sure we are sharing the message, we can overcome this obstacle.

Engagement of students at all levels from when they are young sprouts, early age in elementary and beyond, is

critical to engaging them. When we think about it, of the 70,000 undergraduate engineers, only 12 percent represent all under-represented groups, and the pool of under-represented engineers gets even smaller at the graduate level. We must do something to change this.

We also need to expand the network of engagement by energy providers and companies to create a pipeline of prospective networks, and this includes working with various groups--veterans workforce development associations, other associations like our own--to create that partnership within that non-profit and public/private sector is key.

The fourth principle is really thinking about pathways that need to be developed for different demographic groups and segments of the population. I recognize the Center for Energy Workforce Development that can attest that the education and skills needed are the same for everyone, but the best way to prepare individuals may in fact be different. And this may include different wrap-around services or other items to help ensure their success.

The last principle I mention, and this is because I was a former regulator within the State of Michigan, and my

question always was, we have to look at the data and analyze, just making sure everything that you do--and I know this is mentioned in the draft legislation--look at the analysis and create benchmarks. We need to assess the performance and also find and discover best practices so that what we are doing in one region can be replicated in other regions as appropriate. Those are key.

In closing, I just really want to thank the committee for their work. If we do not take action today to improve the opportunities for under-represented communities in the workforce, we will be only adding to the current disparity that exists between the energy industry and the community it serves. The energy industry can be more reflective of the characteristics of our population, and by doing so, our whole economy will benefit. Thank you.

[The prepared statement of Ms. Martinez follows:]

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Mr. {Whitfield.} Thank you, and our next witness is Mr. Charles Wilson who is the Senior Reactor Operator Trainer and Managing Partner of CW Consulting Group. Thanks for being with us, and Mr. Wilson, you are recognized for 5 minutes as well.

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^STATEMENT OF CHARLES WILSON

} Mr. {Wilson.} Mr. Chairman, Ranking Member Rush, and the other members of the committee, my deepest gratitude.

I am a 36-year-old black man who was raised in the South Side Englewood neighborhood of Chicago. I was born to a single, teenage mother, Elizabeth Wilson, and have two younger siblings, Natasha and Tabitha Wilson. My mother's parents died while she was in her teens. My father played no role in our lives. Today I don't know if he is dead or alive.

We were poor. My family received SNAP benefits, and a small amount of money that my mother received afforded us a very humble apartment during a period in Chicago where the murder rate was nearly twice the rate it is today. Despite my impoverished circumstances, I matriculated through the Chicago Public School System and graduated from Lindblom Technical High School. In 1996, my joy of having survived to the age of 17 and graduating high school displaced my need to put together a long-term life strategy and plan of execution.

That lack of having specific goals contributed to me becoming a teenage husband and father, ready to repeat the cycle that is commonplace amongst those in communities similar to mine. The walls of hopelessness and poverty waited to trap yet another tenant and disrupt the generational foundation necessary to break this destructive cycle.

The birth of my firstborn, Erin Wilson, provided me an opportunity to be a man whose values and principles would be the polar opposite of the man responsible for my birth. That opportunity came in the form of a career serving in the U.S. Navy as a nuclear operator and submariner. My 6-year career provided me the base knowledge and unique skill set that was attractive and needed by the commercial nuclear industry.

Exelon Nuclear gave me my first opportunity as an IBEW union chemistry technician and instructor. That opportunity set a trajectory which allowed me to obtain my senior reactor operator certification for training in December 2013. Since Exelon, I have worked at various commercial sites. Every job I have had in the industry has provided me with at least $100,000 annual income. The new awareness of this life-changing career path inspired me to partner with my best

friend, Dion Clark, of TCI Solutions, also a Navy nuclear operator and senior reactor operator certified trainer. Though Dion served as part of the Navy surface fleet, we won't hold that against him. Dion, a product of Chicago's South Side Robbins neighborhood, and I decide that we wanted to share the opportunity we had been given with our community, the under-represented, disadvantaged, and underserved. Our philosophy was simple: If we could make it, so could they.

And here is how: We created the Legacy Initiative, a program that is rooted in the concept of teaching young people how to think critically. Our youth span from elementary through high school, and we challenge them to take a moment and ask, with this decision, is what I am about to gain worth what I might lose? We incentivize this intrinsic behavioral change by using ourselves as muses, making them aware of the opportunity and educating them on how to attain these opportunities.

From 2008 until now, we have taught our character development and logic curriculum to more than 4,000 youth in Chicagoland, Arizona, and Pennsylvania. We have partnered

with the Center for Energy and Workforce Development. We are now implementing the second phase of our strategy to pipeline these young people to those post-secondary institutions that have 2- and 4-year STEM degrees. These individuals in turn will become the qualified, skilled workforce that the energy and manufacturing industries need.

This bill would make what were a series of chance encounters and good timing for me into a template for deliberate, rewarding strategies for those demographics I represent and more. As evidence, I offer that my daughter, who graduates in June from Kenwood Academy in Chicago, will be entering the historically black university, Howard, majoring in nuclear engineering. My oldest son, Willie Hampton, graduates next year and intends on obtaining his 2-year technology degree, getting a job as a nuclear operator, taking courses while he is utilizing his company's tuition reimbursement benefit, and then graduate with his undergraduate degree at the same time as his high school classmates. But he will have 2 years of work experience, having enjoyed a six-figure income and having no debt.

Our paths like the ones funded and supported by this

bill ensures that my 5-year-old son, Charles Wilson II, and others in his generation don't have to experience poverty and can start to build the generational wealth and opportunity that evaded the generations before them. Thank you.

[The prepared statement of Mr. Wilson follows:]

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Mr. {Whitfield.} Thank you, Mr. Wilson, and I thank all of you very much for your testimony. I will recognize myself for 5 minutes of questions, and then we will give everyone up here an opportunity.

Many of you have talked about programs that are already in existence, and Ms. Brundage, with Shale NET and Mr. Jarvis with the NECA labor union apprenticeship programs in which you all are doing at the University of Houston. And I was wondering, on the Hispanics in Energy, do you all have a training program or a program that is helping workers get into the energy sector?

Ms. {Martinez.} We don't have a training program, but we are doing the outreach. And what we found from our tour across the country last year was that in many ways, many of these programs are operating but they are not interconnected.

Mr. {Whitfield.} They are not interconnected?

Ms. {Martinez.} Right. So when we think about the engagement of many things, we know that there are different groups that are out there working and trying to aim towards this goal, but a lot of times the agencies and the entities

are not communicating. And so by part of this legislation, I do believe, is to make sure that you have that efficiency and that collaboration because with that collaboration you can achieve better success.

Mr. {Whitfield.} Yeah.

Ms. {Martinez.} So many groups work within their own silos. And so our goal is to try to help bring those things together and make those connections.

Mr. {Whitfield.} And Mr. Wilson, you and Mr. Clark, in your program, do you all have training programs or is it more of a mentoring or how does it exactly--

Mr. {Wilson.} Combination of both, Mr. Chairman. What we found in our time was that we have to change the behavioral process and thinking of the young people in some of these communities. We can't put them in front of an employer and they don't know how to make better decisions for themselves. So we wanted to instill things like self-concept and self-respect, accountability. And then with that, we can instill leadership. So that is the first part, is to change that behavioral attitude and decision making.

Secondly, yes, we do want to then train them with those

stackable credentials that the doctor mentioned and also the wrap-around services that Ms. Martinez also spoke to. So there is a collaborative aspect that has to come with this. So there is the training, not only with the mentoring but also with the skills that they need to--into the energy sector.

Mr. {Whitfield.} So do all of you agree that this type of legislation would really be beneficial or does anyone have any suggestions on ways we could improve it? I am assuming all of you have read it.

Mr. {Jarvis.} Mr. Chairman, if I could, our apprenticeship program addresses the exact things the other panel members are talking about today with our outreach programs. We have many programs where we reach into the communities for the underserved and undereducated and offer these career opportunities. And so we think this legislation speaks exactly to that, and we look for your support.

Mr. {Whitfield.} Okay. Dr. Krishnamoorti?

Mr. {Krishnamoorti.} Thank you. We agree with that observation. There is no silver bullet. It has to be a combination strategy. We need to look at apprenticeship

programs. We need to look at stackable credentials. We need to look at mentorship programs. And clearly, these programs have to be scalable but in the end are individually focused.

Mr. {Whitfield.} I think Ms. Martinez touched on a good point because it is awful easy to kind of be isolated out there and not have interconnection. So that is one. I am sorry, Dr. Brundage, did you want to make a comment?

Ms. {Brundage.} Yes. Thank you. No, I agree with you, and I think, you know, one of the things that I tried to reference in my verbal testimony was to try to target some of that federal funding in promoting those regional collaborations. You know, and in the example of Shale NET, you know, we set up a lot of hubs in areas where there is a lot of activity, and it began in the upstream side. But as we moved forward realized that there are more opportunities to spread that out into scale in the midstream and downstream. So it is taking that successful model and those stackable credentials and trying to build that continuum and that pathway for people to continue in being able to move into those types of career opportunities.

Mr. {Whitfield.} Um-hum.

Mr. {Wilson.} Mr. Chairman?

Mr. {Whitfield.} Yes.

Mr. {Wilson.} To also ask you the question about other areas, there are two other areas that I think that we should concentrate on as well and that is the wrap-around service aspect. Groups like the United Way, if we can utilize those non-profits that will take care of the things that children have to consider or youth have to consider, if you are wondering about eating, you are not going to concentrate on your math and physics. So if we have those things that sort of take those concerns off the table, I believe that will help strengthen that pipeline.

Secondly, when they get to these schools, do they have adequate housing? That is something that I had one of my youth contact me about and say though he can get into the school, which was Linn State, he didn't know where he was going to live. So that is another concern is when they get there, how do we make sure they are taken care of when they get to these collegiate levels?

Mr. {Whitfield.} Thank you very much, Mr. Wilson, and my time has expired. So Mr. Rush, you are recognized for 5

minutes.

Mr. {Rush.} Again, I want to thank you, Mr. Chairman. This has been so far a very exciting hearing for me. Mr. Wilson, as I read your testimony and listened to your testimony, I couldn't help but be moved by your story which is a story that has been shared thousands and thousands of times among youth across the Nation. It reminded me also of my own life story, and I was also raised by a single mom with five children on the South and West Sides of Chicago. And I am a high school dropout. I dropped out of high school, but now I have two bachelor's degrees. So overcoming the odds is something that I am real familiar with. And so your story reflects and is parallel not only to my story but to others.

I applaud you for not settling for the life that was right around you, the life that you observed day by day, you know, getting up in the morning and going outside and seeing the negativism that is around you, and somehow you had to dream bigger and dream further and dream the impossible. And so I applaud you for not only dreaming the impossible but you believed in the impossible and believed that you can overcome the odds and make the impossible possible. So I really

congratulate you. I know the path and the steps that you have gone through.

And I just want to take a moment. Ms. Martinez, it is so good seeing you again. We were on the same panel some months back, and welcome. But Mr. Wilson, in your testimony you stated that success came from unexpected and unplanned manners. Tell me what did you mean by that? Explain that more. How do you think that provisions of this bill can help other young men and young women through real-life conditions and help them to realize that similarly evasive but real nearby American dream if we only had the courage to step out? How do you think this bill will assist in that manner?

Mr. {Wilson.} For me, it is important for me to think about the fact that there is more, there is more to it. And sometimes it is just a matter of exposure. When I was in Chicago and those neighborhoods, I wasn't exposed to anything. I could only see what was in front of me, and I didn't have many role models around for me to see what was possible. So when I speak to the unexpected, I didn't script this. I spoke to my mother the other day, and I said who would have thought in this small bedroom on 56th and

Hermitage that I would be sitting here in front of Members of Congress? That is what I mean. It is not about where you are from. It is are you going to use it as a crutch or are you going to use it as fuel? And once you are exposed, once you have access, I believe that these young people that we are talking about, they will see what they need to become. We will incentivize that behavioral change. We will see that there is something to lose. And when you feel like there is something to lose, it changes your behaviors.

So for me, that is what did it. I looked at my daughter, and I did not want her to have to repeat the cycles of not having a father in her life. He became, my father became, my fuel. If I do the opposite of what he does, he has given me my blueprint for me to be successful and hopefully raise successful children. And I want to speak to a legacy. This is what it is about for me. My children saw me and how I did what I did, and now their efforts are deliberate. They are planning it. It is not happenstance which is what happened for me. If I didn't have a friend, Brady Fox, that went to the Navy and said, hey, do you want to come? I looked around. Why not join the Navy? And with

that, I was selected to be a part of the Navy Nuclear Propulsion Program, and I am able to now say that that gave me the foundation that I have right now. And with these institutions, these educational opportunities we have now, this can now again be another pathway that wasn't expected and now exists. And I believe this bill will allow more of these type of stories to again be delivered.

Mr. {Rush.} In a similar way, I dropped out, and I was 17 years old on my next birthday which was about 3 months later. I pleaded with my mother to sign. Let me go into the service. Three of my friends from the neighborhood, two of them went to the Marines and I went to the Army. And that is what gave me the wherewithal and to turn my life around. So again, parallel circumstances.

Thank you so very much. I yield back, Mr. Chairman.

Mr. {Whitfield.} At this time I recognize the gentleman from Pennsylvania, Mr. Pitts, for 5 minutes.

Mr. {Pitts.} Thank you, Mr. Chairman. Let me continue with you, Mr. Wilson. You have a compelling story. I really appreciate hearing it. And you went in the Navy, and that was the key. What were your skills before you went in and

how was the Navy effective in changing your skill level?

Mr. {Wilson.} My skills from an educational standpoint came from Lindblom High School. It was a technical high school. And it was very rigorous in the sciences and the math. I was unaware that I would need to use algebra or understanding what velocity and force and anything meant. And it is funny. There is an exam that is required once you take what they call the ASVAB for the military. I was then selected to take this nuclear entrance exam. I recall one of the questions talking about speed, and it happened to be something I paid attention to with my teacher, Mr. Robinson, in physics. I needed a 50 to pass, and I had a 52. And there were five of us that took it, and I was the only one that actually passed. And when I looked around, they took me into a room and they said, we want to talk to you, Charles. I said, what is that? You are the only one that passed. And I looked at people who were college educated around me. They were speaking about this nuclear program as if it was something that they knew that they were going to get. I looked around and I was the only one that passed.

So I would say that that time in high school, that

education, that math and science focus, is what gave me the foundation. Any other skills came from just truly survival, being in Chicago. And I was a pizza delivery guy. I don't know if that had anything to do with it.

Mr. {Pitts.} What were the key components? You have a real compelling story. I want to drill down a little bit. What are the key components to your behavioral change?

Mr. {Wilson.} My mother first. She truly represents-- Elizabeth Wilson represents fortitude, strength, and more importantly resiliency. You have to understand, a teenage mother having three children and not planning her life to be that way and not having her own parents to fall back on because both of them died while she was a teen.

And so she literally was trying to write the book as she was moving forward. She inspired me. She gave me the belief in myself as well. She encouraged me to be free. I used to enjoy bringing A's home to her because she smiled, and that inspired me to want to do that more.

When I got to high school, my classmates, watching how they got up every day to come to school, despite the odds, gunshots, three or four different gang neighborhoods that we

would walk through, and I saw them come every day. And there was a joy to come to school with everyone from Lindblom. Those things, that relationship, is what caused me to say I want to do more. I want to do better than what I am seeing.

Mr. {Pitts.} Now, in talking about working with people who need a second chance, how do you teach and how do they emphasize the right character qualities for behavioral change to get them so they do show up on time, you know, that they are the type of employee that employers want to hire. Would you develop that a little bit?

Mr. {Wilson.} I believe the first thing is we have to be transparent and honest about what opportunities exist. Very many times we speak very vaguely about what an opportunity is. So someone from let's say my neighborhood, when I would go speak to the young people that we had in Chicago and other places, I would literally take them my paycheck, and I would pass it around and I would tell them to look at the number on my paycheck and let them see me tangibly and give my story and say I am nothing but you. There is no magic pill except focus and having specific goals because after you have these specific goals, the map to get

there will lay itself out.

So I think when you are honest and transparent--the other thing is you have to be very transparent about your errors. We typically try to gloss over the errors and only get to those good things about us. So being transparent is what allowed me to now have people that trusted me, and when I give them now these suggestions, they will take it for face value initially, and then when they see the results, they are bought in. So it actually becomes intrinsic because I first show them that it is possible, and then secondly, here is what it takes to get there and then they will believe it.

I think that is what it is. All people need is an opportunity, and if they see that it is possible and they see someone in front of them that looks like them that can speak to and articulate a message for them that is palatable, I think they will get it from there.

Mr. {Pitts.} And you are obviously teaching that to your children so you can replicate success.

Mr. {Wilson.} That is correct.

Mr. {Pitts.} You are a real inspiration. Thank you very much. My time--

Mr. {Wilson.} Thank you, Mr. Pitts.

Mr. {Pitts.} --has expired.

Mr. {Whitfield.} I wanted to make an announcement that we anticipate that there will be votes on the floor at about 11:15 or 11:20. And of course, we have 15 or 17 minutes to get over there. I think if we break for these votes, a lot of people will end up not coming back. So would you all object if everyone was given 3 minutes for questions? That way we would have maybe an opportunity for everyone to ask questions. Is that suitable with everybody? Okay. Then Mr. McNerney of California will be recognized for 3 minutes.

Mr. {McNerney.} I enjoy being the first one with 3 minutes, Mr. Chairman. No, I want to thank the chairman and the ranking member for their work on this and the panelists. They have very good testimony. You know, we have the Labor Statistics' unemployment rate for African Americans is 10 percent, more than twice that for whites. Hispanics, almost as bad, some of the statistics that Ms. Martinez raised. And then on the other hand, we have all these opportunities in the energy industry. Solar industry grew 86 percent since 2010. Wind industry, 73,000 full-time workers. Energy

efficiency, 1.3 to 1.9 million new jobs by 2050. So we have it and we have opportunity. What are we going to do about it? Well, we have some ideas up here on the panel. I thank you very much for that.

Dr. Brundage, I am very excited by Shale NET. I haven't heard anything about it before. I am going to ask my staff to get a copy of a description of that, see how applicable that would be. Could you give me some idea how Shale NET is funded?

Ms. {Brundage.} Yes, absolutely. Right now I mentioned in the verbal testimony it was funded by the Department of Labor. a TAACCCT Round II grant, which was a capacity-building grant to help with infrastructure. This particular grant does not pay for tuition. On the short-term workforce side, we have, you know, these 3-week programs, sort of like boot camps, and we have active case managers that help, you know, the students understand the expectations and the culture, the work environment. We start classes early, we end later, so that they have a feel for what the expectations are, and we have been able to raise local dollars through Pennsylvania's Act 13 and to help with scholarships and also

through corporate engagement. Chevron has pledged $460,000 for the initiative over the next several years. And so we are trying to help offset some of that tuition because unemployed and underemployed folks, you know, if they don't have access to those dollars, it is difficult.

Mr. {McNerney.} Okay. Thank you. Mr. Jarvis, you said the government should promote apprenticeships. Do you have any ideas on how that should be done?

Mr. {Jarvis.} By supporting apprenticeship programs through the different grants that are available, and by supporting our trade groups, it allows us to do more outreach into the community. I am also moved by Mr. Wilson's story. I have many employees that work under me that have come up through our programs, outreach programs, and some of the other questions about what does it take to make people understand these opportunities and what skills. We teach life skills, things as simple as you have to get to work on time, you have to show up every day. Our outreach programs teach those things first, which makes these people, as they come into our apprenticeship programs, successful in the program. If you can't do those things--

Mr. {McNerney.} Well, I have been to the YouthBuild program in my district, and IBW is there promoting apprenticeships. So that is good. I would like to ask Mr. Wilson a question, but I have run out of time. So I will yield back.

Mr. {Whitfield.} Well, thank you, and they called this vote a lot earlier than we thought. They have already called the vote, but at this time right now, the gentleman from Mississippi, Mr. Harper, for 3 minutes.

Mr. {Harper.} Thank you, Mr. Chairman. Thanks to each of you for being here on a very important topic, and I, too, would like to say, Mr. Wilson, thank you for the inspiring story. And I am not one who wants to brag on my academic accomplishments, but I did graduate in the top 100 percent of my class. So I wanted to go ahead and throw that out. It was close, too, by the way.

Mr. Jarvis, you talked about the importance of having a flexible workforce available to adapt to emerging trends. Can you give me an example of what you mean when you say it is unnecessary and short-sighted to train someone in a single technology?

Mr. {Jarvis.} Yes. Thank you. We train electricians to be able to do all sectors in the electrical industry so a very common example today is the solar industry. There are groups that believe that we should be training a solar worker which is just one small piece of being able to do electrical work. Our 5-year apprenticeship program teaches a career opportunity. Markets change. The solar industry will change. Our training program trains a person for a lifelong career to be able to earn not only top wages but top benefits as well. So you need to have a diverse training that takes a lot more than just one sector in the energy industry in our opinion.

Mr. {Harper.} And if you do that, whether we call it cross-training or giving them the different options here, what does that do as far as the additional time needed for the training program?

Mr. {Jarvis.} Well, the training program that we have is a 5-year program, but you work as you--

Mr. {Harper.} Within that curriculum for the 5 years, okay.

Mr. {Jarvis.} Correct.

Mr. {Harper.} Great. Thanks. I will yield back in the interest of time, Mr. Chairman.

Mr. {Jarvis.} Thank you.

Mr. {Whitfield.} Thank you, Mr. Harper. Mr. Loebsack, you are recognized for 3 minutes.

Mr. {Loebsack.} Thank you, Mr. Chair, and our ranking member. This really is a really great opportunity to hear from you folks. It has been kind of an eclectic panel I think to say the least, a lot of different things that have been mentioned here.

I might ask just one question. I do want to just make some comments about workforce development more generally, and I do want to kind of throw a question at you folks that may be unfair and probably should be directed more at my colleagues and as we work through this bill and do what we can to make it better eventually. But you know, I was on the Education in the Workforce Committee for 8 years, and we dealt with a lot of these issues on that committee. We passed the Workforce Innovation Opportunity Act last year which was the reauthorization of the Workforce Investment Act. There is a huge overlap between what we are talking

about today here with respect to the Department of Energy and the various things that have been talked about today and what the Department of Labor does. And I know the Administration is trying to interface some of the agencies and what they do.

And again, Mr. Chair and Ranking Member, this is something I would like to be working with you folks on down the road, sort of how can we, you know, get some of these agencies to talk to one another and work together and streamline some of these programs, maybe combine some of the efforts if possible? But I do want to ask, and it is kind of an unfair question, I admit, to all of you, because you are nodding. If you will, Doctor, any thoughts about how we might be able to do that instead of reinventing the wheel every time, having one department do something, have another department do something that might be similar to what that department is doing. Any thoughts about that at all? I know it is kind of throwing you folks for kind of a loop here, and maybe I am doing the same thing to my colleagues.

Mr. {Wilson.} Is there a way to make effectively a liaison within each department that is meant to sort of see what the overlaps are--

Mr. {Loebsack.} I think that would be a great idea.

Mr. {Wilson.} --with the Department of Commerce, with the Department of Labor where there is a person that looks and sees, okay, what active efforts do you have?

Mr. {Loebsack.} Right. And the Department of Energy perhaps--

Mr. {Wilson.} Exactly.

Mr. {Loebsack.} --in the states.

Mr. {Wilson.} Then they all just effectively maybe do like a sit-down once a month or whatever any new legislation that comes out specifically for their groups.

Mr. {Loebsack.} Right.

Mr. {Wilson.} Is there a way to have maybe a liaison or person--

Mr. {Loebsack.} That is a real possibility.

Mr. {Wilson.} --to reach out--

Mr. {Loebsack.} Thank you, Mr. Wilson. I appreciate that because again, there are going to be a lot of things. Yes, Doctor?

Mr. {Krishnamoorti.} I would like to add there are modes of operations where there are collaborations between

agencies, interagency collaboration. Interior and Energy collaborate, for instance--

Mr. {Loebsack.} Right.

Mr. {Krishnamoorti.} --in the off-shore space. And that makes a big difference in being able to double-up training programs for off-shore workers. Similar things can be done with Labor. They have the data. Energy needs the data in order to actually bridge that skill gap.

Mr. {Loebsack.} Right. I think that is great. I mean, you know, we have a lot of community colleges in Iowa, and we have got a lot of connections between the community colleges and the wind energy program for example, too, and we can do more with, you know, populations who are under-represented in these areas. I have no doubt about that.

And so I am going to look forward to trying to find a way to interface these different departments and the different programs so we can move forward on these issues. And my time is up. Thank you, Mr. Chairman. I yield back.

Mr. {Whitfield.} The chair recognizes the gentleman from West Virginia, Mr. McKinley, for 3 minutes.

Mr. {McKinley.} Thank you, Mr. Chairman. I had

probably 5 minutes of questioning. We are going to try to cut it back down to three. The first observation I had about this whole issue--I was really looking forward to be educated about this, and I think some of you have touched on it. But the primary issue is about rural America. I think we struggle. Coming from West Virginia in a small community is how do we have an educated workforce, ready for manufacturing, energy, when we don't have a critical mass? So I am applauding--what we did last year in the last Congress, we introduced a bill. It was 3524 that tried to focus funds going into economically deprived communities to help out, to plus them up some in the grants and programs for education. I think we ought to be looking at that as well. I don't know whether any of you are familiar with that bill that was introduced last year, but I know that Tracy, you got something going at Penn College that is also at Pierpont where we have a training program there for Shale NET.

Ms. {Brundage.} Correct.

Mr. {McKinley.} Can you explain some of the advantages of how that has helped out? Because there at Fairmont is a small community that is struggling. So this program may be

helpful. Can you share a little bit about some of the advantages and how we might be able to spread that broader for other rural communities?

Ms. {Brundage.} That is an excellent question. We have had a lot of discussion about that within the consortium. You know, Pierpont recently became an affiliate of Shale NET. So they are kind of a newcomer to the scene, and they are beginning to offer training there because of, you know, our relationship with Chevron wanted to have a hub in West Virginia to be able to have this consistent training so that people, you know, you can have that consistency flexible program to meet industry needs.

You know, your question about--I think it is important to be able to scale these, and I think I talked a little bit about the stackable credential model and how that model is mobile and can be moved to other locations depending upon the geography. If they didn't want to do the training in the upstream side, you can target it to other sectors of the energy industry. The model with the stackable credentials and the various pathways and continuums really work to make sure that you have that consistent career pathway for

individuals to move into.

So I don't know if that answered your question specifically?

Mr. {McKinley.} Well, as much as how we just need to keep going, are you familiar at all with the bill that was -- providing grants for economically depressed areas? Were you familiar with that last year?

Ms. {Brundage.} No.

Mr. {McKinley.} I would like to get your feedback from that, from an academic standpoint or so, how that might work. It was 3524 during the last Congress. And see whether or not there are some advantages of us being able to focus on economically deprived areas, particularly those in rural America. Thank you very much.

Mr. {Whitfield.} Maybe you could look at that, and then Mr. McKinley's staff could be back in touch with you--

Ms. {Brundage.} Absolutely.

Mr. {Whitfield.} --to get your views. At this time I would like to recognize the gentleman from Texas, Mr. Green, for 3 minutes.

Mr. {Green.} Thank you, Mr. Chairman, and I want to

thank our panel again. In fact, Ms. Brundage, our Natural Gas Caucus a couple of years ago had a hearing in Williamsport, Pennsylvania, at the facility there, talked about it. And coming from Houston, I was surprised to see the technology in the middle of Pennsylvania that we are actually doing at the University of Houston in East Harris County, our community college. So thank you.

Ms. {Brundage.} I remember you said a few words. I was in the audience when you were there.

Mr. {Green.} Yeah, great facility.

Ms. {Brundage.} Thank you.

Mr. {Green.} Dr. Krishnamoorti, as I stated earlier, I feel like Texas and Pennsylvania is doing a lot of things in the energy industry, but what steps has the University of Houston taken to create the outreach and provide access to the different communities to provide information about energy jobs? And you know, I have the College of Engineering in our district, and our district is 70 percent Hispanic, Mexican American. You have to reach out to those high schools in those communities there to provide that training.

Mr. {Krishnamoorti.} Thank you so much, Congressman

Green. The Energy Institute High School, it is a new high school close to the university, within a mile from the university. Seventy percent of the students there are Hispanic, 15 percent of them are African American, and we have got an active collaboration with them. We work with them developing curriculum. We share with them labs at the University of Houston with them. But also we are able to send our students, our undergraduate students and graduate students as peer instructors in that school. And that makes the biggest difference for them, having role models who can come into the schools, show them by example. As Mr. Wilson mentioned, examples of people who have succeeded, who have learned and developed.

We have also taken the same strategy, worked with the whole range of community colleges, nine community college systems in the Greater Houston area, 60-plus community colleges across the State of Texas, all of them focused on taking these stackable credentials, finding ways of actually scaling them and deploying them.

Mr. {Green.} I only have a few seconds left. Can you tell us how can this bill and the Department of Energy

further the goals of the universities and the colleges and community colleges that are already engaged in these projects? Is there anything we could do that would make this bill better?

Mr. {Krishnamoorti.} I think the bill is right on the mark in terms of helping the universities work with community colleges and K through 12 education. I think getting that pipeline set up is the critical piece, and this bill addresses that in a big way. Thank you.

Mr. {Green.} Thank you, Mr. Chairman.

Mr. {Whitfield.} The gentleman from Ohio is recognized 3 minutes.

Mr. {Johnson.} Thank you, Mr. Chairman. Dr. Brundage, thanks largely to the oil and gas industry, coupled with programs like Shale NET that is in our state there at State College, unemployment in shale counties in my district in Eastern and Southeastern Ohio has fallen 66 percent since 2010. In fact, these shale counties are the economic impacts, the positive economic impacts. So the shale plays--that is what is driving the unemployment rate down for our entire state.

And because of this, we have got to continually look for opportunities like Shale NET to prepare our students for the jobs that are here today and that are coming tomorrow.

Quick question. If the goal of Shale NET is to increase capacity in terms of qualified workforce to meet the needs of the industry, how successful in your view has Shale NET been? Can you give us some specifics?

Ms. {Brundage.} Absolutely. I think many factors contribute to the success of Shale NET, and I think the successes are strengthened by the knowledge of partners. It is the strong partnerships to place these qualified candidates with employers and families sustaining careers. But we have the robust selection, assessment process in place, evaluating student candidates--all of these things can be transferred to other areas, other institutions.

When we look at success, you know, a success measure for employers is the retention in employment a year after placement, which is demonstrated by participation in Shale NET. And with that return on investment, we almost take on some of the role of on-boarding because we are helping to vet those people and have them understand the expectations and

give them the appropriate skill sets so that they know what to expect as they move into those jobs, hopefully retaining and allowing them to have greater career mobility.

Mr. {Johnson.} Great. Well, I appreciate that. I am going to be respectful, Mr. Chairman, and yield back the remainder of my time.

Mr. {Whitfield.} Thank you very much. Mr. Sarbanes, you are recognized for 3 minutes.

Mr. {Sarbanes.} Thank you, Mr. Chairman. I want to thank all of you for your testimony. Ms. Martinez and Mr. Wilson, I wanted to ask this question. Obviously in the STEM arena we want to make sure that the academic curriculum that is offered in the classroom for young people in that K-12 space is as rigorous and holistic as it can possibly be. But I am also interested in the opportunities to connect young people with the experiences outside the classroom, in a sense, get them out of the classroom in various ways so maybe their horizons are broadened and they can see the connection to that pipeline opportunity that exists.

So if each of you could just very briefly comment on that idea of how we get young people in the K-12 space out of

the classroom and connected to these career horizons, that would be helpful.

Ms. {Martinez.} Absolutely. And that was an excellent question. In Michigan, there are certainly some schools that work and partner with various companies, especially in the Detroit region, and in those areas they do have mentorship and sort of on-the-job activities that are happening. Part of that is they are getting the students out of the high schools and out of the middle schools and doing sort of a 1-day job shadowing, job mentoring so that they actually can see what is happening. DTE Energy, Marathon Oil, others are taking part in that opportunity, so kids are able to see that real hands-on opportunity and actually get that job shadowing while they are in school, and they are also able to see that just as you can say it, really who that person is and who they are. And it gives them a real goal to achieve.

Mr. {Sarbanes.} Thank you.

Ms. {Martinez.} We find those have been successful.

Mr. {Sarbanes.} Okay.

Mr. {Wilson.} For example, specifically in Phoenix, we have created a program called Legacy I-3, and its purpose is

to partner with these community colleges and some of these apprenticeship programs and such. There is a specific partnership that is created with APS in Palo Verde Nuclear Generating Station, and they have created an ambassador program. So what they do is they actually come to the client schools that we have in Phoenix, in the Phoenix Union District, and takes the students from the class to different job sites so that they are exposed to seeing that this is really what we are telling you theoretically in the classroom. So I think that is an example. If you partner with these member companies, they will have volunteers and those within their organizations that would love to come and then bring those students to their worksite.

Mr. {Sarbanes.} Great. Thank you. I yield back.

Mr. {Whitfield.} Thank you. At this time I recognize the gentleman from Texas, Mr. Flores.

Mr. {Flores.} Thank you, Mr. Chairman. I want to thank you and also Ranking Member Rush for hosting this hearing today. I also want to thank each of you for your testimony. Given the timing and how little time we have left to vote, I am going to commend each of you for the jobs that you have

done. I commend you for the quality of your testimony. Mr. Wilson, all I can say is wow. What an awesome piece of testimony. Ms. Martinez, thank you for what you are doing.

I think given the lack of time we have, I will just submit my questions in writing. Thank you.

Mr. {Whitfield.} Well, thank you very much, and I am sorry we were interrupted by these votes, but I think everyone had an opportunity to ask some questions. And thank you all for being with us, and we look forward to working with you as we try to put this package together in an effective way. We will keep the record open for 10 days for any additional submissions, and thank you once again. And we will adjourn today's hearing.

[Whereupon, at 11:20 a.m., the Subcommittee was adjourned.]