

## GREEN CREDENTIALS WEBINAR TRANSCRIPT

### Green Credentials - Examining diverse certifications and other credentials and their role in facilitating green career pathways for lower-skilled adults and others.

**October 20, 2011**

<TELSpan Event Information>  
<Confirmation Number: >  
<Date and Time: **10/20/11 2pm EST**>  
<Customer Name: **National Wildlife Federation**>  
<Moderator: Kristy Jones>  
<**Conference Title: Green Credentials** >  
<Length of Call: 88min.>

Operator: Welcome to today's National Wildlife Federation Conference Call entitled: Green Credentials; hosted by Ms. Kristy Jones. During the presentation all lines will be in a listen only mode. A question and answer session will follow today's presentation, and instructions for asking questions will be given at that time. Thank you all for your attention, I would now like to turn the conference over to your host, Ms. Kristy Jones.

Kristy: Hi everyone! This is Kristy Jones from the Campus Ecology Program at National Wildlife Federation. Thank you for joining us today for our Green Force Initiative Webinar on Green Credentials. Today's webinar will be one hour and thirty minutes, including a question and answer session at the end. If you get disconnected from the conference, simply dial back in using the 1-800 number and the code. If you are having trouble with the web conferencing software, please call TelSpan at 1-800-937-7726. This conference is being recorded and will be available at [www.greenforceinitiative.org](http://www.greenforceinitiative.org) within about a week or two. We have a great lineup of speakers with us today. First we have Sarah White from The Center on Wisconsin's Strategy. Sarah is a senior associate at the center and will set the stage for our topic today, giving a national perspective on green credentials. Next, we have Kristine Reynolds and Chad Wolfe from the North American Board of Certified Energy Practitioners. Kristine provides application support for NABCEP, and Chad is their entry level program coordinator. They will give us an overview of their program and certifications. We also have Randall Coleman joining us from the Green Building Certification Institute. Randall is the program associate for credentialing at the institute, and he will highlight how the GBCI and the US Green Building Council work together and

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highlight their credentialing opportunities available. Next, we have Tom Gannon from the AFLCIO's Working for America Institute. Tom is the institute's field specialist for manufacturing. Tom will present from the perspective of the manufacturing sector highlighting opportunities. And our next speaker is then Butch Grove from Wake Technical Community College in North Carolina. Butch works in Wake Tech's Office of Sustainability. He is the North Carolina Community College System's Code Green Curriculum Improvement Project Manager. Butch will talk about the integration of credentialing opportunities and their training programs. So we will hear from each one our speakers and then we will open up for a question and discussion. Alright, with that said, Sarah, I'd like to go ahead and turn it over to you.

Sarah: Sure! Hey everyone! Welcome! I am just going to talk a little bit generally about issues of greener skills, and as it gets into training systems in the United States. Then, I will pass it along to hear about some of the specific examples that Kristy just outlined. So, what I wanted to say first of all, and none of this will be strange to any one you, but there are three primary challenges that we have in our education and training systems in the United States. The first one is about skill delivery. You know, how do training systems work? We don't really have a coherent way to deliver skills in this country, even though lots and many of you are doing it in all kinds of great ways, but the system remains incredibly fragmented with community and technical colleges, universities, apprenticeship programs.....we have a public workforce system, a community based organizations, industry associations, for-profit assets.....some of these are absolutely fabulous and some of them are terrible. The main issue though is that none of them talk to each other in really systematic ways, and reforming that is incredibly hard because we have a very decentralized system. Right? So, this urge to sort of rationalize education and training comes up really hard in this country against sort of local control issues for good reasons because you know sort of the flourishing of local systems allow a lot of innovation. So, that is one set of issues. We also don't have a tremendously efficient way to measure skills. We know what degrees our workers have and this is a certain level of educational attainment, but we don't really know what competencies they have. Are they qualified to perform a particular job? We don't have a great to document those competencies in any systematic way at least. The [sic] credentials out there.....is as local and as messy as the system that

delivers them and they are often not a good way for employers, consumers, or students to sort out which means what. You are talking about the variety of data systems is a whole other webinar, so I won't even go there. The last thing that we don't have great mechanism for determining demand.....what are the skills that are actually needed by employers? I know this is sort of the silver bullet for all of us working on this right? What are the degrees of certifications that have relevance in the labor market? We all talk about wanting industry recognized credentials, but what is that exactly? Do we know that our credentials are recognized by industry? Some of the speakers today are really going to have some good answers to that. The last thing I want to say in this part of my talk is simply that these issues, which are part and parcel of the American education and training system are magnified by green, right? Sort of, we have seen really well meaning folks jump into the training space and add layer after layer of sort of boutique initiatives and calling for green workforce development. However, we at Cowsville [sic] have argued for a long time that there is no such thing as green workforce development, right? There is workforce development, and it can be greener.....that all jobs can and should be greener, both in their product and in their process. The green labor market issues are the same as the grey ones, you know? You need to better organize the supply side.....you need to better connect it to the demand side, and we know how to do that. So, that is the good news. This all sounds like a big challenge but it really is something that we know how to tackle. So, we've called over the past 5-10 years for a really greener skills agenda in this country. All of you are part of that and have been doing really the heavy lifting on this. We would like to see some kind of national qualification framework, some kind of skill standard based on competencies, but frankly right now, we are not going to change the history of the United States which separate education and training in all kinds of odd ways.....but we can work to integrate them better through industry partnerships and through career pathways. For lots of technical legal issues that we won't go into, our country is really itchy about anything called a skill standard, but we still think that we can make really good moves towards coherence and towards a more competency based system for training and assessment. The other thing we think is incredibly important is to focus on the middle and the lower end of the labor market, which is really more than a high school degree, but less than a four year college degree. This is where we think the majority of green jobs will be and where the workers are or where they need help getting to. This is a challenge because

even.....you know, for the programs that focus on this level, we have an education system that is primarily designed for 18 year olds, but we really need to think about training the workforce that we have. You know, adults and transitions declining industries, [sic] low wage work, and you know, our skills and the delivery systems are looking pretty good for four year degree holders and post graduate studies for the rocket scientists. However, we are really concerned about you know poor folks, the working class and the middle class people who need to figure out how to get rational pathways into a greener economy. So, that said, we have....you know, these are a couple of reports that we have done over the years that have explored credentialing and greener education and training, and the main conclusion that we came to after years of research is that it all essentially defies organizations, which is probably not what you want to hear. There are thousands and thousands of green and greenish and kind of green and greener credentials out there, and this is what the system looks like to learners and workers and employers. You know, you have got short term certificates that apply to associates degrees and journey cards and national certifications and you have associations and industries in a host of training systems, defining skills across technologies and occupations. I could talk more about this, but I don't want to give you a head ache. The people who are going to talk to you today after I introduce them are going to talk a little bit about some of the solutions that we have for this. The first thing to know though, within this sort of spaghetti junction of credentials is that not all credentials are created equal. There are certain things that we need to look for in a credential. A meaningful credential has to pay off in the labor market because it means something to an employer, it has to be transparent so that workers know how to earn it.....if it is possible, a credential should be embedded in a pathway so that it is clearly connected to a job or to a next level of training, and they need to be standardized right? Reflecting common measures of competence because then they are portable, and they are not limited to a particular region, employer, or institution. So, you get a credential and it is not just you know, Sara's cow credential. It means something to employers wherever you go in the country, and it means the same thing to them. So, that is the goal. We are not quite there yet, but a lot of you are doing the heavy lifting on this, and we think that one version of the credentials that really answer those criteria and unprofessional certifications.....these are very different than what you might call a certificate, and I hope that our speakers will talk a little bit about that, but what we really like

about certifications is that it can be achieved through any variety of training systems. So, if you want to pursue a certification, you can do it by studying in your basement, you could do it by going to a community college through a JATC.....any number of training providers. So, it transcends that tangle of credentials, and it is a third party impartially assessed credential. So, this is the way to bring order to this whole chaotic system without starting over. I think that some of the best that you are going to hear from, NABCEP, the manufacturing skills standard certificate, which has been doing this you know for decades and the GBCI are super high-quality certifications that we are pretty excited about. The last observation....something that I just want to make before turning it over to them, and this is really critical I think for the training community in particular to get is that a lot of national certifications with standardized skill sets that are third party verified operates really at the high end of the labor market. In the clean energy space certifications, especially in the renewable side, but also in efficiency, tend to be for advanced professionals with post-secondary degrees. Sometimes those graduate degrees, and often require a lot of field experience, and a lot of people working in this space have been criticized because they say that certification set way too high a bar. I would argue that the answer is not to lower the bar, but to build a better approach system. That really is the heavy lifting that you all are doing right? This has to do with standardizing in the intermediate credentials and building accessible on ramps to help more people, particularly poor people and working people up and over. So, this is part of building a workable clearly articulated system of career pathways, which I think is the role in really organizing this market of green credentials. So, I look forward to hearing from my colleagues and hearing questions from you at the end.

Kristy: Great! Thank you Sarah! Thanks, and I think it is really important to highlight the challenges in the area because if you don't, you don't feel like you can move forward. Also, for stressing the greener versus green because you are right. There are opportunities in all areas for that. Alright, so I am going to go ahead and turn it over then to Kristine and Chad from the North American Board of Certified Energy Practitioners.

Kristine: Thank you, and that dovetails very nicely into what we want to talk about today with NABCEP. I am Kristine Reynolds and I am the

application coordinator at NABCEP. I am the person who looks at all the applications that come through for our folks who want to take our exams.

Chad: I am Chad Wolfe and I coordinate the entry level programs here. I'll give you a brief introduction to NABCEP. NABCEP is the gold standard for solar, electric, and solar thermal installation certification. Our organization was designed to raise industry standards and promote consumer confidence. We offer certifications to renewable energy professionals and entry level skill assessment exams to students throughout North America. Our goal is to develop voluntary national certification programs that will promote renewable energy, provide value to practitioners, promote worker safety and skill, and promote consumer confidence. NABCEP is a volunteer board of renewable energy stakeholder representatives that include representatives of the solar industry, NABCEP certificants, renewable energy organizations, state policy makers, educational institutions, and the trades.....

Kristine: So, why would someone want a NABCEP certification? Well, NABCEP certifications and non-assessment programs offer meaningful career ladders for workers and their renewable energy market places. We offer increased credibility and marketing value as David Verner, one of our solar installers says, "When NAB consumers see NABCEP certification on their website or my business card, they know I have been trained to meet high standards of this national certification" and I know that a lot of our installers feel that way. We have greater career mobility. Our certifications are for the individual installer and they can take that certification with them wherever they go. As long as the certificate holder recertifies every three years, he or she will always have that credential. NABCEP installers have peer recognition. In other words, NABCEP has become very well known within the renewable energy sector, and people within the industry know that NABCEP is the certification that is well respected. In individuals with this credential, they have worked hard to get it. NABCEP offers a validation of experience and knowledge. People who are looking to get a foot in the door and start a career in the solar PB or solar heating industry use the entry level exam as a way to verify that they have a basic knowledge of solar technology and are ready to get a more hands on experience. The people who have a NABCEP certification have verified that they have both experience and knowledge by applying for the certification and passing the exam.

Chad: I'll take a minute to talk about the entry level program here. The entry level program is geared towards people that have no background in renewable energy education as a place to start. As Sarah mentioned earlier, it is an accessible on ramp. I think that the steps towards taking the NABCEP entry level exam, and that is for both solar electric and now we have just unveiled the solar heating entry level exam as well. The first step is to find a registered provider of the entry level exam and we have right now about 300 providers across North America and the majority of our providers are community colleges and technical schools. A candidate will complete a course offered by the provider that covers the 10 NABCEP learning objectives. After passing the entry level exam, they get a passing score achievement document, and it is important to note that the entry level exam is not a certification. It is merely an entry level skill assessment, and it is a good place to start for those who are looking to get into the industry.

Sarah: The certification on the other hand is awarded to people who meet established standards, have advanced technology, and a specific training, and they are qualified and pass a rigorous exam. In order to become certified, an applicant must fill out an application and document both advanced training for the specified technology and experience in the field. One of the questions that I get asked the most is if taking the entry level exam qualifies the person to take the installer exam, and the answer is no. Before a person is qualified to take our certification exam, they must have experience in the field and formal training knowledge of the technology. The entry level exam is helpful and a great starting point, but does not qualify a person to be certified. I also want to add that on the last speakers note that the entry level is not mandatory for people to take our exam. When we say that we want them to have training, we outly a variety of different ways of how a person can get trained. It doesn't specifically mean a classroom training. It could be an online training or various other ways through a JTC. We try to create various pathways for a person to be able to get our certifications. Once a person fills out an application, he or she can show that they have fulfilled the edibility requirements; they are then allowed to take the exam. The candidate must then pass the exam within a two year period in order to obtain the certification.

Chad: As you can see on the slide here, I will talk a little bit about the entry level programs that we have. We have the PV entry level

program. PV is short for Photovoltaic's, which is solar electric. We have just unveiled last month the solar heating entry level exam, and we have got a few providers for that already registered. Next year we are hoping to unveil the small wind entry level exam which will focus on residential scale small wind systems, small wind electric.

Sarah: We have four credentials right now for our professional certification. We have three installer exams. The solar PV, the solar heating, and the small wind installer and those exams are given twice a year. They are given in test sites all over North America, and everyone takes the same exam on the same day at the same time. Then, we also have the PV technical sales certification, which is our newest certification and that is given all over the country, twice a year as well, but you have a window in which you can take the exam and it is a computer based exam. So, we are branching out and trying a little bit of a different way of administering exams with the new PB technical sales certification. I also want to add that we are having an upcoming company accreditation program, and this program is going to be for renewable energy companies that meet specific and variable criteria based on business practices and hiring practices, social and environmental policies and practices. NABCEP has been working with the New York State Energy Research and Development Authority, NYSERDA, and our stakeholders to define the criteria eligibility seas and policies for this accreditation. The pilot program is moving forward and the launch is going to be in 2012, so up and to the point, you know we have been certifying individual folks who can then move around the country and use their certification wherever they go. We are branching out to be able to accredit companies.....and their best practices. So, we look forward to taking people's questions at the end, and I just want people to know our e-mail addresses because.....and our phone number because we are always available for questions. If something comes up in the future and you have a question about NABCEP, please feel free to call us.

Kristy: Thank you Kristine and Chad. The contact information is here and we have it on another slide as well. This will be posted to our website, so don't feel like you have to write it down quickly. Thank you both for that presentation. I think that it was really helpful for you all to just kind of highlight the difference between the entry level assessment versus the certifications, and also what your future plans are for opportunities, so that is great! Alright, so I am going to go ahead and introduce Randall Coleman from Green Building

Certification Institute.

Randall: Hi everybody! It is really really good to be here. I think this is really great. Everyone here really is an expert in their field and in what they are talking about, so I am just honored to be with everyone here. So, as Kristy said, my name is Randall Coleman. I am a program associate in the credentialing department of GBCI. We do credentialing, which is basically the credentialing of individual professionals to lead standards and we also certify buildings to lead standards. So, I have a few things that I want to talk about, but Kristy, if it is too long, you can just cut me off! [Laughter]. I'm sorry, what was that?

Kristy: You will be fine! I said you will be fine!

Randall: Okay, cool! So, I wanted to talk about the distinction between USGBC and GBCI because you might have heard of USGBC, and you probably haven't heard of us. I also wanted to talk about what we do, our credentials, and a recent study that was done looking at certain industries and the green workforce. So, to start off, if you have heard of the US Green Building Council, they have been around longer. They are kind of like a sister organization to us. They are the ones that create the lead standard, and lead stands for leadership and energy and environmental design. So, they create that standard as the whole process. In fact, they are doing that right now for the next version of lead, which comes out at the end of next year. Then, there is us.....GBCI; we are separate and a third party certification body. So, we look at documentation that people send in for particular projects or building and see if they are meeting those standards. Then, what my team does then is that we create exams through a job path analysis and then we learn those exams and you become accredited or you don't. I like this slide because I think it really gets at the basis of what lead is about. It is kind of like a nutritional label.....when you look at food, you are looking at.....okay, what are the contents in this can of soup for instance. When you are looking at a lead score card, you are looking at, okay, what are the contents? What are the systems? What are the techniques that this project team used for this particular building? So, further talk about what is green building or what lead is. These five topics here are represented by our different rating systems. We have the different rating systems.....we have systems for new construction, operations and maintenance, homes, neighborhood development which is our newest, and

interior design and construction. So, you can see here the site is important. The way you manage water, indoor use and outdoor use.....all the different energy inputs that you have going on.....and energy efficiency.....the use of materials, you know, preconstruction, during construction and after, and then the indoor environment as well. So, a few years ago, GBCI was created. I think it was three years ago, and that was because as I said, we wanted to be able to objectively certify buildings and people, and because of that we fortunately got our credentials were any anti-certified 17024. Similarly to NABCEP a few slides ago, their example was anti-certified and that really tells the marketplace that we are meeting international standards for accreditation. So, with this new economy and new demands, we solved the new workforce needed and new credentials as well. So, the league associate, this is one of those new credentials and we.....I think Sarah mentioned earlier about on-ramps.....we see this as an on-ramp and we see it as a final destination. A lot of people get the league and associate to then go on later and get the lead AP credential. So that is like an on-ramp, but for other people, this really is the best credential for them. I say that because this credential represents a basic foundational knowledge in league in green building and it is not as technical as the lead AP. So, the people that have this credential are sales people, product manufacturers that know, "Okay, my product contributes to this credit and this credit in the lead rank system." It could be real-estate people, lawyers, and people of that nature. The architects.....they are not the engineers working on a particular building. So, let me talk about the eligibility requirements for the green associates. It is one of three. You can either show or approve that you work in a sustainable field and that basically.....you know, it can be renewable energy, it can be for a firm that works on green projects.....it is pretty broad. Number 2, you can work in an educational program that focuses on sustainable design or something related to sustainable design or have worked on a lead registered project. So, let me talk about the lead APs now. We have originally.....there was before 2009 or before July of 2009, there was a lead AP without specialty credential. With the creation of GBCI and with the new version of LEAD coming out in 2009, we also created new credentials that are specific to the different rating systems. So, starting from the left, we have ND which is Neighborhood Development, BDNC which is Building Design, IBNC which is interior design, homes which is operations and maintenance. As I said, these are more specialized. They are more technical, and for the most part,

well.....I should say yeah.....for the most part.....and often times each of these credentials kind of represents a certain occupation or field. At the same time, it is not exactly a one to one like you know.....installing solar PVs as a particular task and skill and job. Whereas these credentials are more about knowing what LEAD is and not about knowing how to do a particular job. So, the edibility requirements of the lead AP are a little more strict right? So, for this you have to have worked on a lead registered project in the past three years. These are some of the industries or occupations that our credential holders represent. So, I have mentioned a few of these but for instance, project management, sales, media marketing, manufacturing.....those are usually the green associates and architecture engineering, general contracting, commissioning.....those are usually more technical for buildings and so therefore those are usually lead APs. I want to talk about a study for the next few slides that does focus on architecture, engineering, and general contracting. The AEC firms.....so let me.....so a few months ago I think even, a girl hill construction in tangent with USGBC and the American Institute of Architects (AIA) conducted a study where they sent surveys to individuals that work in the architecture engineering and contract industries as well as the companies in those fields. Individual professionals were asked if they were employed in a green job, and firms were asked of how much of their work was green related. Additional partners for this study were the National Associations of the Remodelers Industry, the Society for Marketing Professional Services, and the Building and Construction Trade Department of ASLCIO. I thought the results of this were very interesting. I wanted to share it with you all. So, the definition that they used for what a green job is, "is something that works and is 50% or more a green project or designing and/or installing a uniquely green system." As I said, or excluded support and administrative functions, manufacturing production and transportation related stuff.....So, the major findings, using this definition, was that the green building market currently supports 661,000 green jobs in the design and construction industry. This is a third of the designing construction workforce. The study can only show growth in the future as well. By 2014, it is expected at 45% of the AEC workforce will be employed in a green job. So, good news for us! The additional findings were....I thought this was very interesting. They ask individuals, "Do you have a green job, yes or no?" Then, they also asked the firms, "How many of your projects would you consider 'green'?" It was the exact same quantity, 35%. Then looking strictly

at the trade jobs, like plumbers, boilermakers, electricians.....that are expected to increase also. Right now it is at 15% of the workforce. It is expected to increase at 25% in the next three years. Also, respond to those surveys that they think green jobs yield more opportunity for themselves and their career investment. 71% of the people that make hiring decisions at these firms believe that someone who is certified in a green skill increases their competitiveness as a company. That is our website, and I am.....ohh...sorry about that. Thank you!

Kristy: Great! Randall, thank you so much! Thank you, it was really helpful to kind of talk about the US Green Building Council and your institute and how you all work for each other. Then also, you gave a couple of examples of matching up the green jobs in the industry up with what credentials would fit with them. I think that was really helpful for people. Yeah, so thank you! I will go ahead now and introduce Tom Gannon from the AFLCIO Working for America Institute.

Tom: Thank you Kristy! I am happy to be here today! I would like to echo in support what is sort of previous speakers have said, and go back to especially what Sarah laid out in her opening remarks. That is our approach to training at the working for American Student ASLCIO.....it is very similar. We want our workers to have nationally recognized portable credentials based on validated industry standards and also very importantly for both our employers.....our signatory employers and our members is that they be legally defensible if challenged in court. What I am going to talk a little bit about today is our approach to the development of manufacturing skill standards, countable systems of certifications, assessments, and standards assessments in certification in the manufacturing sector and the development of the new green production module. Often times when people think of training programs and unions, they automatically think about the apprenticeship programs and then especially to the billing and construction trades apprenticeship programs that are run jointly by the Union, and there are signatory contractors. In manufacturing, we have sort of a two-tiered system or our two levels system of training workers.....we do have although they have been lessening in years, a declining in years, but we do have skilled trades, joint training programs and apprenticeship programs that used the apprenticeship model of learning while doing and on the job, and have often been time-based. Those are for the folks who you would consider machinists or tool and die makers. The specialty skills inside a

manufacturing plant, which often times are the maintenance, installation, and repair people who are the skilled trade folks. So, they could be electricians and [sic] and plumbers and machinists and those folks, but then we also have a lot of folks in manufacturing that are what we would call the production or the assembly a portion of manufacturing and they didn't.....they learned their skills on the job and they have a lot of good skills and they have learned things. However, they did not learn them in a formal way, and so they have no formal recognition of the knowledge and skills that they have. So, at the ASLCIO, we are approached with partnering with the National Coalition for Advanced Manufacturing in developing the MMSSC system, we were delighted to do it because we felt that it was a way of documenting the skills of our workers, of ensuring that they had the new skills that are necessary to help their employers compete and in the global marketplace. We have been part of that system, when I say labor, all the major manufacturing unions of the AFLCIO participated in this and set up an MSS sea labor caucus and they designated a top person on their staff, usually from their training or apprenticeship departments to participate in the development of the system. So, the partnership was launched in 1998 and it is an industry wide system of all the major stake holders, so that would be employers, trade associations and unions and educators and community groups and governmental organizations.....anyone that had a stage in the development and delivery of training in manufacturing. It was a long process as I said. We started in 1998. The first standards were released in 2001.....and we used a very rigorous process that we continued to use today and in that process, we had focus groups with frontline workers and first line supervisors. We had over 700 companies participating in that and thousands of frontline workers in developing the standards....the draft standards. Then we went back out over 4000 front line workers and supervisors to validate the standard. So, what came out of that is the MSSSC certified production technologists credential. That credential is based on high performance, foundational skills, and it is a floor or foundational skill for anyone in manufacturing on the production or plant floor. Folks who are working up toward a skill trade, apprenticeship certification, or production workers and assemblers, and as I we created this, we had to create standards that were applicable to 14 subsectors of manufacturing. That shows that on the slide.

Kristy: Hey Tom! I just want to interrupt you real quick. Do you want me.....our slides aren't moving along.

Tom: Ohh! I am sorry!

[Laughter].

Kristy: Ohh, that is okay!

Tom: I wasn't working.....I wasn't looking at the slides! I'm sorry!

Kristy: No, no! Not at all! Would you like for me to move them forward for you?

Tom: Sure! Yeah, I've got it here right now. I am sorry! I was reading off my papers!

Kristy: Yeah, no, I apologize I didn't catch it sooner. I just didn't want to interrupt you.

Tom: Okay. So, just one more thing about the MSSSC.....it has been a system that is not part of the NAM endorsed skilled certification system, and I will talk in a little bit about that later, but the MSSSC is one of the core of the certifying bodies that have been recognized by NAM for their signatory.....I mean, for their members and employers around the country as a recommended system because the National Association of Manufacturers as Sarah pointed out, everyone looked out there and said that there are multiple.....[audio cutting in and out].....and bringing in a little bit.....[no audio].....so as I mentioned, that is the production credential. It is not focused on specific occupations. It is focused on major areas of activities of what we call "concentrations" in manufacturing. I Things had to be done inside of manufacturing enterprise. We identified 6 major concentrations and we have certifications for 2 of those. One is production and the other one is logistics and inventory control. I won't be talking about that today, just the production certifications. So, the MSSSC certification production certification consists of 4 modules and those modules are health and safety, production, maintenance awareness, and manufacturing process improvement. These are scales that.....these four modules have been recognized the skills that manufacturing workers have or that trainees get if they go through a training program in manufacturing. Then, what we decided to do with this green production module was to add a 5th module, and that is for the purpose of improving the

manufacturing process, creating the manufacturing process as a way of contributing to the green economy and capturing jobs. We did that for a specific reason because you know, we as Sarah mentioned....we looked at it and said "manufacturing green products is sort of using new skills for old jobs and having new jobs with old skills." So, we felt that those were existing skills when we needed to look at them and apply them to green products, but also what we wanted to do was to green the manufacturing process to improve the efficiency and the operating capabilities of our manufacturing companies. We had a strategy in labor that said that we were going to look at a career path for workers, as I mentioned portable industry recognized, stackable credentials, and again, as I mentioned, legally defensible. We wanted to document the existing knowledge and skills that our workers had using the MSSSC system as the core foundational skill, and then look forward to the development of a green production module. Then, finally, what we wanted to do was to have a strategy to link emerging occupational industry specific training needs to existing specialty and apprenticeship programs that provide recognized credentials. So, then, that leads to looking at systems within NAM endorsed or fit the apprenticeship occupations or federal working on occupations under the NIMWS that the National Institute of Metal Working Standards. When the green energy training program came about, when the RFP came out, we partnered with the Communication Workers of America and the International Union of Electrical Workers to develop this green production module and we also partnered with the MSSSC, so what we said we wanted to do was not to develop a whole new certification, but to tied into an existing, recognized credential and to broaden the skills then and the knowledge in that credential. They had two major goals. One was to certify dislocated workers to document the skills that they had and to certify those workers sent to help you send that documentation to help them capture jobs and what we hoped was going to be the emerging green products field. We all know that the field hasn't you know, hasn't developed as much as we would like in the past two years, but this is slowly coming along and we figured that these were experienced manufacturing workers who could document their skills and then go back into manufacturing. You know, in Ohio and in this portion of Ohio, in the Dayton area, there are a number of companies that were suppliers of the auto industry that were developing greener products like batteries for electric vehicles and more fuel efficient engines and motors for vehicles. So, we felt that there was a natural connection there, and the IUE has represented a large number of workers in the Dayton area, at the Dayton truck plant,

and in the supply chain. I am sorry, let me go back one. So, that was the goal of the green production module. We just released it on Tuesday down in Dayton, and I would imagine.....I haven't checked it myself but if you go to MSSCUSA.org, you will see the new green production module and the result of two years worth of work under this grant. Let me move..... [Audio cutting out].....I just want to give you a little bit of information. This was the green production development team. We had people from labor, we had people from industry, and we used educational specialists and training to develop a high quality module and training system for the workers, and as again as Sarah said, we'd rather have these standards and these systems set at a higher level and help workers work to achieve those than to set them at a lower level and have them not be at meaningful potential. So, those are the folks that were involved. They are all very experienced workers and leaders and educators in manufacturing. This is the process that we use and its development validation of curriculum and assessment development and structure training.....and course assessment. We are going to be issuing the first GCM certificate. I want to go back a little bit and talk about the curriculum and assessment. The MSSSC is in the process of achieving ANC certification and we are expecting to hear very quickly, and very soon on that. It is the NC-17024 certification. Normally, and in this case what we did was in the curriculum and the assessment development, we built a firewall between the development of the assessment and the developers of the curriculum, but we learned in that past that we needed to develop some training material. Initially, the MSSSC just released standards, and with them we found that we had to develop some training materials because we were the closest to it and the ones that understood the standards and what they were trying to convey. So, we have done that but we have maintained a firewall. So, what we have are standards and assessment and a curriculum training book which was just released. It is just about 130 pages for helping workers develop their skills and identifying opportunities to green the process to reduce waste, the use of resources, and release us into the environment. These are the key activities. I won't go through them all, but these are the key activities in the green production module, and as you see, they are really focused that not a job, not a specific occupation, but enabling front line workers to participate in the greening of the process in partnership with their employers and we think that this is an important way and a novel way to approach building more sustainable manufacturing operations throughout the country. That's it! Thanks!

Kristy: Great! Tom, thank you so much! Your slides are really great! It was interesting to see that one that was kind of highlighted with some of the subsectors, which fall under manufacturing. Then also I think you know the content you had on the green production module was really quite interesting.

Sarah: Hey Kristy, this is Sarah. Can I step in for just a second?

Kristy: Of course!

Sarah: I just wanted to make some clarifications because we all live in this world of alphabet soup right? I think all of our secrets have talked about NC-17024, and for people who don't live in the world of certification, that sounds crazy. That is just an international standard for personnel certification and certification usually applies for personnel or equipment, this is the one about personnel. Accreditation is a different beast. It usually deals with programs or companies or organizations, so there is some technical language there. I think it is also important. I think people are getting the message, but just to reiterate the difference between a certificate and a certification, the process that Tom described and it is true with NABCEP and NGBCI, going to these anti-processes. It is a very expensive, long, two year process that involves a lot of different things to set up a certification and assessment to make sure that it is fair. As Tom said, legally defensible. Regular people need to know, if you have a certificate, you are not certified. If you give someone a certification and they say that they are certified, the body that issues that certification is liable if there is a safety issue or you know, legal issue or the quality of the work, the organization that said, "You are certified" can be taken to court if they don't do it properly. So, that is why, and you know, I think a lot of people think, "Well, you know I am going to set up a certification," but it is really intense and a long term process, which is why only a few people are doing it and doing it well. So, I just want folks to sort of understand this sort of in and out over the some of the distinctions.

Tom: This is Tom. Thank you Sarah. That was helpful. I just wanted to say again on that legally defensible, if a company and a unionized company says that they are going to use a specific assessment for special promotion, and the union agrees to it, both the company and the union are liable if a member or a worker would sue and allege that

the assessment used was not legally defensible on all rights and applicability and methodology and thing like that. So, it is an important issue for us as union representing members, and obviously for the employers using an assessment.

Sarah: Right. That is absolutely right. That is the other piece of it. Right!

Kristy: Great! Thank you both for adding that. I would like to introduce our next speaker then, it is Butch Grove, from Wake Technical Community College in North Carolina.

Butch: Thank you Kristy! Good afternoon everyone! I appreciate the opportunity to speak with you this afternoon. I am probably going to echo many of the comments, many of the excellent comments that have already been said, but I would like to talk with you about a CIP and CIP is short for a Curriculum Improvement Project. In that capacity, I serve as the project manager. This is a statewide initiative. North Carolina consists of 58 colleges that are independently having their own advisory boards and board of directors, but we also have a system office that provides oversight direction and those kinds of things. So, this is an effort that is trying to look at our technical and vocational programs, and I'll get to the goals in a minute, but obviously it is to integrate green sustainabilities. This is also called a super CIP.....sounds like something you get at a 7-11! The reason it is called a super CIP is because North Carolina has been doing curriculum improvement projects for over 25 years. Typically that has been.....we look at 1, 2, maybe three programs and we bring back putting together from those disciplines and do an assessment of where the program is at, where it needs to go, doing a gap analysis and professional development and training for our faculty to move on. So, dealing with one or two programs every couple of years is not a small task, but we are dealing with 80+ programs, and we have those divided up into 5 sectors: building and construction, energy and environment, engineering technology, and transportation. So, to help facilitate that, we went through a competitive bidding process and I have 5 ecologists that are the lead in those 5 respective areas that are helping, and they provide some of the expertise in that area along with industry experts and over 200 faculty from across the state that are helping guide this process. So, these are the overall big goals of this project. Again, it is a two year project. We started it in July 1 of 2010, so we are a little over 15 months into it. So, revitalizing

our applied science programs and creating specialized credentials in continuing ed. and curriculum, and providing a streamline program structure with more flexibility. Those two top goals right there.....providing flexibility and a stream line isn't always conducive to providing a highly structured program, that it leads to some of the speakers have talked about stackable credential. So, on that continuum of a highly structured program to a flexible program, where each college can meet the individual needs of the employers in that area has been a constant challenge for us. Where do we fall on that? To be honest, we have more often been on the flexibility end of that continuum so that colleges can develop curricula that aligns with industry certifications that are most prevalent in their particular area. So, the bottom two goals: obviously increase the number of students trained in green skills and create better articulations between our credit and non-credit sites. What you won't see as a result of this curriculum improvement project.....let's see, you only got one here. So, this slide is not showing up as it should be. What you won't see is we didn't go out and start programs in solar PV, solar thermal, geo-thermal, bio-fuels, wind.....when we did our research and looked, what we saw was that many of those skills needed by those specialty disciplines, niche markets if you will, were largely in existing programs. So, maybe not for the installer, but for the higher level PV technicians.....many of those skills are existing in our electrical systems technology programs. So, rather than reinvent a solar PC curriculum, what we are doing is adding the additional skills that that electricians would need to become PV installers. The other side of that is you know, if the PV market doesn't come along as quickly as we would hope it would in a particular area, they have base foundational skills to follow back on. So, the same thing with geo-thermal embedding skills into our HVAC program, biofuels, biogases.....we are embedding those into our industrial systems. When technology, we think in North Carolina, that will probably be a lot of those jobs will come from the manufacturing of and the installation and construction of the wind turbines, and then later on the maintenance, but we are embedding many of those skills in our electrical and mechanical programs. So, a lot of the work we have done has been based upon the DOL career competencies models, and in fact I think this one is the one for advanced manufacturing. You can see that this is a tier model, and somebody asked the question, "What do industries really need?" In addition to the technical skills they need are some of those lower foundational levels, especially around personal effectiveness competencies and the

academic competencies. Students that are well trained but they also need to be able to communicate effectively, be reliable, and all of those other soft skills as they are many times referred to are important as well. So, in addition to infusing green skills into our curriculum, we have hit these bottom two tiers pretty hard in our curriculum development process as well by identifying using these career competency models. What are those personal effectiveness skills and let's document those and put them into the curriculum. Many of those skills can be found in the more traditional academic competencies. The general ed., as we usually refer to it, in North Carolina for two year degrees, we require a minimum of 15 general education hours, and so obviously interpersonal skills could best be found or one good place to teach those skills would be in a communications course that also satisfies our general education requirement. So, we have tried to design our curriculums based upon these competency models. If we are starting from the bottom and getting into those yellow areas that are industry wide, industry specific kind of skills, and then we are going to leave the occupational specific skills up to the individual colleges because those occupations that are needed in my area for our college at Wake Tech may not necessarily be the same occupations that are available or needed at a school that is on the coast or in the mountains or something along those lines. I think the struggle again has been, "How much flexibility do we provide to colleges and how much do we prescribe the curriculum?" So, again, that has been the tight rope that we have had to try to balance this entire process, but what you see here is a list of the certifications as we were not.....this is not an exhaustive list. These are some of the more green kind of certifications that we have looked and starting to embed in course competencies, in course descriptions, and things like that so our curriculums can start addressing those skills that my predecessors have talked about. A couple of good resources that we have looked at is O-Net. That is an excellent resource. I am sure most of you are probably familiar with that, and just one that I ran across just yesterday.....not yesterday, a few days ago, was a portal in New Mexico and it just lists a lot of jobs and ranks them in terms of their greenness from light green to dark green if you will. So, I just put that up there because I just discovered it. I think it has been out for a while, but I just ran across it a few days ago. Some of the challenges for us, in terms of considering the certifications that each individual college will decide, obviously I have those listed here and costs are part of it. The transparency.....not all

certifications are created equally. I was very glad to hear that we emphasized that the certifications that were mentioned earlier.....the NABCEP, the NAMS endorsed skills, the lead AP, and the lead green jobs.....they are all certified by some body.....ISO or Ancy. Those are all really important. So, tailoring our curriculums to industry certifications, we also have to take these things into account. One of the big ones is number 4 and we learn this from the IT industry who has a lot of certifications, but a lot of times we will train individuals for a particular industry certification and send them on their merry way. They go and take that, but we never get any feedback from other than anecdotal feedback from the student. If they come back, "Hey, I passed the certification," or not. So, these are important things that I think as we move forward with industry certifications that we look at the reporting, the feedback, and how do we transcript this? Do we use a national clearing house of some sort, but how do we not only enable the completer of these certifications to say in a defensible way that "I am certified", but also put report back to the colleges so that we know how good of a job we are doing in the training venue? So, those are things I think that are important, at least at community colleges here in North Carolina. I would guess probably all over. Finally, this is just some examples. This is our electrical systems technology. You can see that the area there under A core are the.....again this is where we are at right now are the required courses. They form the basis. This doesn't show the general ed. requirements and the employee.....the ability requirements are other parts of our curriculum standards, but the courses that one would go.....that they would take to be an electricians in our electrical systems technology program. We added these additional skills under this area B here, so you could see that there are additional courses that programs could choose in order to tailor their electrical program towards photovoltaic systems. A similar program in industrial technologies.....the part there under A are courses that every college in this state would take along with the general ed. classes and the employability core and then there are areas under there towards the bottom of the stream. Some classes that if a college wanted to take their program in a biogases direction, those are the courses that we would command to go there. So, that is kind of what we are doing in North Carolina. Again, it is a statewide effort, so it is pretty big. We are ending the curriculum development phase of that and starting the professional development phase of it. So, that is it for me Kristy.

Kristy: Butch, thank you so much! That was.....I mean, it is pretty impressive that you have a very [sic] system in North Carolina. The plans look great! I apologize that one slide that I know is very important on your skills integration; I will make sure that that comes out clear so we can get that posted online. I want to make sure folks can see that. I also think you're focus on select disability for each of the individual schools is key for this moving forward. Alright. Well, let's go ahead and start the question and answer session. Andrew, if you want to give instructions on how to ask questions by phone, that would be great!

Andrew: Yes, thank you! At this time, we will begin the question and answer session. To ask a question, press 0 followed by a 1 on your touchtone phone. Questions will be answered in the order that they are received. Again, if you would like to ask a live question, please press 01 on your touchtone phone now. You may also submit your questions in the chat box on the right hand side of your browser window. Please hold for a moment while our system compiles any responses.

Kristy: We will go to the phones first once those come through. So, we will go back and forth from the phone to the discussion area and hopefully we will address everyone's questions.

Andrew: As of right now, we do not have any live question. As a reminder, you may press 01 to ask a live question, and I turn it back over to you for any current web questions.

Kristy: yes, we have plenty of web questions and so I am going to go ahead and actually turn it over to Jen, since she has been tracking that.

Jen: So, Sarah, this question is for you from Josh. He was hoping to get a copy of the reports that you were talking about in your presentation and if those are available, do you have any links or anything like that?

Sarah: Ohh sure! If you go to our website, which is [www.cows.org](http://www.cows.org) and search for those titles and you will find them. The greener skills in particular lists the leading certifications in renewable energy and energy efficiency. I would also like to.....because I know there are some questions about resources to say that the institute for.....I

mean I am sorry.....the Interstate Renewable Energy Council (IREC), [www.irec.org](http://www.irec.org) has a list of current high value renewable certifications and who is doing that you know that are based on the standards. So, that is another great resource. They also have licensing database and they also have a database for training programs. So, [www.irec.org](http://www.irec.org).

Kristy: Yeah, and this is Kristy. I will be happy to send out those resource links for Sarah's site, as well as IREC after the webinar. So, I'll make sure you get those. Do you want to go to another question?

Jen: Sure, this is from Judith for NABCEP. She was wondering how you validate the person taking the online exam, is who he or she says he or she is.

Sarah: Ohh yeah, sure! When we do our computer based testing, it is actually done at a computer based testing site. So, the individual receives a letter from our testing contractor. They print that letter out from their e-mail. They bring that letter with them, and then they have to verify who they are with the government issued ID, and their name needs to match the letter exactly before they can take the exam. When they set down at the computer terminal, they take the exam at the site and then they leave. So, it is not taken on your home computer. You have to go to a site.

Jen: Great! Thanks!

Kristy: Andrew, are there any questions on the phone?

Andrew: Currently no questions queued up on the phone, and as another reminder, you can press 01 to do so.

Kristy: Alright, well, we have plenty of questions in the discussion area. Jen?

Jen: So this is pretty much to anybody from Susan. Are there any industry recognized credentials in the environmental field, other than building or renewable energy or manufacturing? Anybody want to answer that? Would it help to repeat the question?

Everyone: Yes! Yes!

Jen: Okay. Are there any other industry recognized credentials in the environmental field besides building renewable energy and manufacturing that you all are aware of?

Sarah: Alright, well, this is Sarah. I think you know, there is a ton of credentials specific to industries and occupations. So, in environmental, you would want to know which field.....I mean environmental engineers have their own certification classes. There are sustainability credentials. There are dozens of credentials in different programs around the country. As far as a national certification, you probably want to check with the industry and who is focused on a plan of renewable energy but you would need to check with industry working groups. They can usually.....and industry associations usually are a good place to check that. Also, ATE and the National Science Foundation.....is another good resource for a specific environmental education and training credentials.

Butch: Kristy, this is Butch. One of the reasons I posted that New Mexico site was because it is divided. It lists things as occupations, so when environmental engineering technicians, environmental engineers, environmental science and production technicians, environmental science to specialties, there are a good two pages of certifications. I am not familiar with any of them to be quite honest with you. Some of them are very occupationally specific, but that was what impressed me about that link that I put up there.....was the way it was broken down and the number of credentials. However, I can't vouch for any of them.

Tom: This is Tom Gannon. I am aware in manufacturing there is another credential that Purdue University working with the Society for Manufacturing Engineers were developing a generally.....the Society for Manufacturing Engineers were looking at additional certification for engineers and people lead people on lean-to-green sort of projects within a given company, but you could look at Purdue. One of the things that we did on this green production module was we also looked at training and certifications that the Environmental Protection Agency and the Department of Energy had in terms of you know, environmental pollution reduction or energy efficiency. So, you might want to check those two agencies to.

Kristy: Thank you all for your responses to that question. Butch, that link that Butch had highlighted.....that will be in once we post that

you can get access to that.....that resource that he mentioned and take a look. We do have one question on the phone. Andrew?

Andrew: Yes, and that question comes from James Schumacher from Santa Monica College. Please go ahead James.

James: Yes, hello everyone! Our question is for Randall with GBCI. You mentioned the fact that in order to get a lead associate that you have to be enrolled in an educational program. It is assumed it is very.....it narrows it down to who can be qualified. I am involved in the Zero Waste and Resource Management Program at the college here and I am wondering.....would that qualify me to become part of the associate program?

Randall: You said you are on Waste Management?

James: Yes, uhh-huh.

Randall: Yeah, I think that would. I am not the person who does that, but knowing other programs that have passed; I would say pretty confidently that yes that would.

James: Okay, so can I go through your organization or would I contact the USGBC?

Randall: Well, you would contact us. I don't think that you need to contact us. Basically the process is that you would need to give a certificate of completion to the students, and then when they go to apply for the exam, they are going to have to submit documentation, a.k.a. the certificate. So, once they do that, a certain amount of people are audited to see that they actually did what they said.....that they meet the edibility requirements. At that point, they would.....our staff would see if that person was eligible to take the exam or not.

James: Right. Okay, thank you!

Randall: No problem!

Andrew: Another reminder, if you would like to ask a live question, you may press 01. We currently do not have any live questions. I'll take it back to you for web questions.

Jen: Great! We have another question from Bernard, and I think this is directed to Butch, but probably anybody can answer. How do students and employers find courses related to wind and solar if those skills are taught in existing courses?

Butch: Well, you know, that has been a challenge. I mean, students are looking specifically for the title of a course that says "Wind" in it or "Solar". So, I don't have a good answer for that. Hopefully when they don't find courses listed with those kinds of names, they will ask and hopefully our admissions folks and counselors will know that. That is a challenge when you don't have a solar program and people just look on the surface and say, "Well, that college must not be teaching anything on the green renewable side of things." That in many cases is not accurate.

Sarah: This is Sarah. That is a great question, and I know that the technical college system in Wisconsin identified over 400 programs and certificates, which had some aspect of green in them. So, if they did the greening of curriculum and the greening of system, and the sorts of things Butch is talking about, it is very hard though because people tend to want wind and solar. I think that one of the things, a different way to think about it, is not so much having students identify courses but having institutions to have the capacity and the resources to guide students into training programs for which there are jobs at the end. So, you know, you have a lot of people offering wind and solar training, not connected to employers, so you are turning out people with certificates and training in these fields without necessarily any job. So, the idea is hopefully to start with the job and build a training program around that. That way, as Butch described, if you have the aptitude and the interest and you want to look into electricians in the course of that learn PV skills so you could be and you could pursue a NABCEP certification on top of that. It sort of goes from the job rather than starting with the training.

Kristy: Thank you Sarah. Jen, another question?

Jen: Yes, we have another question. Do any of you know if any colleges or state systems have put their course catalogs or descriptions into some sort of searchable database?

Randall: Ohh, can I go?

Everyone: Yes! Please!

Randall: This is Randall. We have a course catalog. Basically, I didn't talk about this really, but each credential that we have all has a continuing education. So, once you pass the exam, you get the credential. You then have to maintain it with a continuing education every two years. So, one of the ways that you would do that is through what we call approved courses. So, we have a course catalog at [gbc.org/findcourses](http://gbc.org/findcourses) and there are quite a few colleges that have submitted their curriculum. So, that is just one of probably many.

Butch: Kristy? North Carolina is pretty transparent without curricula standards. Our course descriptions.....they are searchable. I don't think that you could search them by "green" because a lot of that is not again in the title kind of thing, but all of our courses are maintained in a library and our curriculum standards are as well.

Tom: This is Tom Gannon, and it goes back to also the previous question. One place that you might want to start looking to is the Department of Labor's.....they originally started and I think it was alluded to earlier.....advanced competencies model, and they started with a manufacturing and in fact the manufacturing of the tier 4 were based on the MSSSC standards. What they have done, they have expanded it into other sectors and they generally will list certifications by whether it is industry wide or occupation specific. That might be useful to folks trying to assist students or workers looking to enter some career or get advancement.

Kristy: Thank you Tom and Butch. I am going to list.....when I send back out to the participants, I will highlight the NC System's resources as well as what you just mentioned in the Department of Labor. So, I just wanted to make sure that you all know that so you don't have to quickly write these down. I think we have time for a couple more questions.

Jen: So, this question comes from Cynthia. She says that she is currently a lead AP building design and construction. She has been asked to do a lead home project, and she is wondering if she still needs to take the exam through that, even though she is already a lead.

Randall: Well, that is a good question. It depends on what you are being asked to do, I would say, for that home project. The Homes rating system is actually quite different from the other four in the certification process. It is very different. So, you don't have to be a lead AP for homes necessarily, but I think that depends on what you do. There are also something called a leaf for homes green rater, and they are basically in the residential field of energy efficiency. There is someone who comes in at different parts of the process, and looks at the mechanical energy systems in the house. So, there is that role also. I guess I would need to.....you can contact me. You have my e-mail up there. You can contact me with like a more specific question as to what you are being asked to do on this project, but I would say not necessarily.

Jen: Great! Thanks! We are going to take just one more question. Does anybody have any suggestions on where to find sustainability marketing training?

Sarah: I think, you know, this is Sarah. It is sort of series of larger questions in that, what is sustainability market training? I think people who succeed in marketing in green industries have a solid base in marketing, and from that, learn an industry and the skills that are needed to advance in those specific sectors or specific business. The skills are not. The skills, and I mean, I don't know if it is a separate skill set for the sustainability marketing right? There is a skill set about marketing and then there is a knowledge base about sustainability.

Kristy: Thank you Sarah. Yeah. That is difficult to answer.

Tom: yes, this is Tom. I don't know about the sustainability marketing credential, but there was a study done for the National Institute for Standards and Technology Manufacturing Extension Partnership. There was a study done on sustainable manufacturing and part of it looked at what employers were doing and not doing, but with an eye toward the need for employers to you know document sustainability or implement it and document in order to better market their products around the world. So, it might be worth looking at. It is not a specific credential or anything.

Kristy: Great! Thank you Tom! I am going to go ahead and close. There are a couple of questions that we didn't get to so I apologize, but

the contact information is up on the screen. So please feel free to contact myself or the other speakers to get your questions answered. So, I wanted.....well, there is another question there just quickly. We will be posting an archive of this webinar on the website at [www.greenforceinitiative.org](http://www.greenforceinitiative.org) under Resources. So, it will be posted within 1-2 weeks, so you will have an opportunity to take a look at it. I wanted to thank everybody for joining us today, and a special thanks to our speakers. I appreciate your time and everything you shared with us today. It was a really great call! Our next greenforce initiative webinar is on November 17th. The focus is sustainability in the curriculum and it is at 2pm eastern.....exact same time as today. You can learn more about that webinar and register at [greenforceinitiative.org](http://greenforceinitiative.org) under Resources. Thank you for joining us, and have a good afternoon!

Andrew: Thank you all for your attention. This concludes today's conference call. All participants may now disconnect.

**<END OF TRANSCRIPT>**