

AACC SEED Center Webinars

Transcript of Webinar

**Community College and Industry Partnerships:
Real Jobs in the Clean Economy, Part 2**

Date: Thursday, September 27, 2012

*Transcript by
Federal News Service
Washington, D.C.*

TODD COHEN: Good afternoon, everybody. I hope you're well. This is Todd Cohen, the program director for the SEED Center at American Association of Community Colleges. Glad to have you.

We're excited because back by popular demand we've got "Community College and Industry Partnerships: Real Jobs in the Clean Economy, Part 2." It's the Brian and Dave Show. We did this about six months ago, Part 1, and it was wildly successful; lots of people, lots of questions; we didn't get to everybody, and so we wanted to do it again. Last time we sort of went a mile wide and a couple of inches deep, and today we narrow the focus and really drill down into the partnership, what it looks like, how it works. So glad to have you.

I'm going to turn it over to Bob to do some logistics and then we'll come back. (Pause, audio break.)

Thanks, Bob. All right.

So the context for this series, is that community colleges and industry partnerships have been critical to the success of workforce programs. I don't believe there's anybody on the phone here today that doesn't believe that has to be the truth. I think the difference is in this greening economy, where technology is changing rapidly and the market itself is so very uncertain, that the partnerships really take on a whole new meaning.

It's more than just defining skill needs. It's more than just figuring out learning outcomes in a one-time meeting. This really becomes sort of a long-term deep partnership, and that's what we want to explore.

So the first webinar – and I hope if you were not on that you had a chance to at least peek at it – but it was really about the "what." And we had Georgia Piedmont Technical College, which is northeast of Atlanta, and Kele Corporation, which is based out of Tennessee, an international company. And together they had really taken the sectoral approach with a host of Fortune 500, small suppliers in the increasingly green, increasingly energy-efficient building automation control industry, and really created a strong partnership where they built a building automation program.

The model was really – and we focused just on what it was – defining skill needs; this college as a convener, actually bringing industry together, bringing stakeholders together to design and deliver programs; and the outcomes for students. So that was about the what.

Today is really about the "how." And we've got two great speakers, Brian Lovell from Georgia Piedmont Technical College, director of the green technologies academy; and Dave Weigel from Kele Corporation.

Brian has had 20 years' experience in the field; then he moved over to the academic side and he really built the academy and built what I think, Brian, is the first building automation systems program in the country, if I'm not mistaken. And Dave has about 30 years of experience. He's an engineer. He's experienced in energy conservation analysis, building automation, renewable energy systems training. So they both have that deep industry experience plus that workforce and training expertise.

So today we'll do a little bit about the "how" – how this advisory board was put together, how they brought companies together, companies that are in some cases competitors with each other, how they identified buyers; and really, how they took it from Brian sort of walking around, knocking on doors a

couple years ago, all the way to where they are now. And he's got some exciting – I'm not going to burst the bubble – but there's some exciting news that Brian can share about where they really are today, and it just shows that they are a deep national best practice.

So we're going to do this for about 30 minutes, and we're leaving lots of times for Q&A. I would urge you all to just post your questions at any point and we are really going to make an effort to get to all of them. But please do post those questions.

So with that, I'm going to turn it over to Brian.

BRIAN LOVELL: Well, thank you, Todd. Welcome everybody today, and we're certainly happy to be here. Dave is actually going to start the presentation today, so I'll go ahead and – this is a picture of our college, Georgia Piedmont Technical College. And I'll let Dave take it from there.

DAVE WEIGEL: You want to –

MR. LOVELL: Sure. I'll give a little history of Georgia Piedmont Technical College.

We were formerly DeKalb Technical College; we just recently changed our name. We were founded in 1961. We service approximately 12,000 students; 4,000 are diploma or degree-seeking students. We have a strong GED and continuing education program as well here. We are part of the technical college system of Georgia, or the TCSG, as you'll hear me refer to later in the presentation. We serve four metro Atlanta counties. And our new president as of a month ago – we're excited to have him – is Dr. Jabari Simama.

The outline of the presentation today will include a little bit of industry focused on the building automation program. We'll discuss three various programs that have strong advisory boards, again focusing on the building automation program. We'll discuss the timeline of program development at GPTC. And then the meat of it will be building and maintaining active industry advisory boards and how we went about that and the lessons we took away from it that you might be able to employ at your institutions; and then finally outcomes.

And I'll let Dave take it from there.

MR. WEIGEL: OK. Hi, everybody. I'm Dave Weigel and I'm here representing Kele Corporation. I'm going to tell you a little bit about them in just a minute. I'm also a managing member of a company called the Watt Doctors, LLC.

First, just a hair about my background with Kele. I was chief engineer for 15 years and just recently took a position that is an engineering consultant with Kele so that I could have more time to devote to Georgia Piedmont Technical College and these programs.

Kele is a building automation supplier of peripheral products. And you're going to have 10 seconds of what's a building automation system here to begin with. And in your building or your place of business or where you shop, there will be a computer that controls all the electrical/mechanical systems in the building and more. And Kele is not a supplier or a distributor of that computer. Kele supplies all the

parts that hook to it – temperature sensors, humidity sensors, valves and dampers and actuators and contactors and things.

Since we don't sell that central computer, we're not competitors with the big names you know who do sell those and install them. Some of those names are Johnson Controls, Siemens, Schneider and Honeywell. And I could name two dozen others but I'm not going to take up your time with that.

Since we're independent, all those names I just mentioned and all the others are customers of Kele. They buy a tremendous amount of their peripheral products from us, and thus, we referred to Kele as the hub of the building automation industry. That puts us in a unique position to be able to take the pulse of the industry, measure its state and get enough data to project its growth. And that's what we'll talk about in just a minute. That has a lot to do with the labor market in the industry and partnerships with colleges like Georgia Piedmont Technical College.

This is just a quick example of – some screenshots of what you might see on the computer front end of a building automation system that communicates with facility management, maintenance, operations, and makes their lives easier. Upper left are a pair of boilers. An operator can see all the various parts and temperatures and flows and status of pumps – just about everything. Same with an air handling unit, to the right. At the bottom left is a graph that might be a trend of power use or it might be of temperatures in some space, and so on.

As far as the industry outlook, first I want to say that these are – I don't like the word "green." It gets applied way too much. But are these green jobs? They absolutely are. Participation in the side of the building and construction industry that makes things efficient and that makes things environmentally safe. Internal estimates of the size of the market are about 5 billion (dollars) in the United States and 15 billion (dollars) for the world.

This industry – building automation – is pretty recession-resistant, and the reason for that is an upswing in construction leads to new construction of buildings, and they all require building automation systems. A downswing in construction and the economy means that building owners and facility managers are trying to improve the efficiency of the plants they already have, their existing buildings, and that adds building automation products into the system.

This is a model that Kele has developed from all the data we get from all the various building automation companies and a lot of our own, and a lot of research into the government. And the dark line you see on that graph is the historical growth of the building automation system industry ending in the year December 2011, but we also can project something about 10 to 12 months in the future and it's pretty accurate.

The other line, the thinner one, is the nonresidential construction market's growth. And you can see there the 2002 recession doesn't show, but through the real bad one that we just are coming out of, construction bottomed out at nearly 23 percent in the negative in growth, and that's year over year, trailing 12 months. The building automation systems market only bottomed at minus-5. And you'll notice, too, that it turned back up about 10 months in advance of the construction market.

The drivers for the market are obviously energy costs. They're not going to go down, are they? As they rise, more building automation systems will be needed to help control them. Environmental awareness – facility managers, owners and architects are interested more and more in having certifications for the efficiency of their buildings; LEED, EnergyStar from the federal government and many others.

And finally, there are new building codes being adopted over the next few years. Some of them have already started. Building energy code ASHRAE 90.1-2010 and high performance building code ASHRAE 189.1-2011 will require many more components in the building automation system for every building; much more complexity.

And how does that affect employment? First of all, the demand for employees matches the industry growth, because this is specialized construction. Only properly trained building automation systems technicians can do the work. It can't just be handed to other trades. And there are no labor economies of scale. I don't think in a construction project of this type you're going to find somebody inventing a robot to take the place of the technicians. And unfortunately, there are not enough trained people to hire out there

That gave rise to the program Brian's going to discuss and Kele's partnership with that program that helped get it off the ground.

MR. LOVELL: Thanks, Dave. Again, I'm Brian Lovell. I'm director of the green technologies academy and building automation systems program at Georgia Piedmont Technical College. I'm also a managing member of the Watt Doctors. As Todd previously mentioned, I had been in the controls industry for over 20 years, and what I saw in the industry was a real dearth of trained BAS – building automation systems – technicians.

And so after selling that company in the mid-2000s, I decided to have a career change and I joined Georgia Piedmont Technical College in the summer of 2007. And what I'd like to do today is first of all give you a timeline of events at Georgia Piedmont Technical College which brought us to this point to present to you today.

I'd like to discuss three different models of active advisory boards, one of them being the building automation system program. I'd like to discuss common elements of each of those that might be employed at your institutions and how to properly maintain productivity of those boards. Everybody has advisory boards; how do you make them productive? And then questions to ask yourself – if you want to have a very active and productive advisory board at your institutions – finally, outcomes.

And so here we start with the timeline of the program development. We started at Georgia Piedmont Technical College in 2007 with the express goal of developing innovative new programs, beginning with a commercial refrigeration program. In August of that year we sat down with the VPs, the president, the deans and division chairs, and we presented a vision for the future. And I should mention a Mr. Gerald McWhorter was instrumental in this as my cohort in helping to establish the vision, present the vision to administration, and then execute building all three of these advisory boards.

In fall of 2007 we began developing the commercial refrigeration program, and we subsequently presented that to TCSG – the technical college system of Georgia – for approval. In late fall of 2007 we

established the first of the three advisory boards, the commercial refrigeration advisory board. And this figure shows you a little bit about the dynamics of that board. We had one central industry figure who helped coordinate that board who was a supplier in the commercial refrigeration marketplace. We'll discuss more about that in just a few minutes.

In the summer of 2008 we developed the country's first building automation systems program at the associate's degree level and subsequently submitted that for approval to the TCSG system as well. In fall of 2008 we began renovations of the laboratory spaces at our college. And in January 2009, the building automation systems advisory board was established; and Dave Weigel, who's presenting with me today, was an integral member of that advisory board.

And that dynamic was a little bit different than the commercial refrigeration board dynamic. We had expertise in-house from years in the field, so we were able to identify key members of the advisory board that would serve as pieces of the puzzle and who could work together that could counterbalance one another so the board would not be skewed in any one direction for any one company's benefit. But we'll again discuss this more in detail in a few minutes.

In the spring of 2009 we began the green technologies academy development and subsequent submission to the TCSG for approval, and in June 2009 the green technologies academy advisory board was established. And that board, again, had a different dynamic than the other two. There was a common interest in sustainability, so it wasn't hard to establish a vision for that board. But it resulted in a little bit different dynamic in that advisory board, which we'll discuss.

At the end of that process, we had established partnerships with nearly 60 companies. This is not an exhaustive list, but this is one that was presented at an industry partnership for industry and education even that we had at our conference center for the grand opening of the programs. That celebration was held in September of 2009.

In the summer of 2010 we were awarded three federal stimulus grants for energy conservation measures and renovations, which had a significant impact on the quality of our facilities, which students later used in living laboratory exercises that were supported by our advisory board members and corporate partners.

And in September 2012 – this month – we were made aware that we will be a member institution of the National Science Foundation's adult and technical education national center, which is called the BEST Center – building efficiency for sustainable tomorrow. That's centered at Laney College in California, and Peter Crabtree is the primary investigator. I'll be a co-primary investigator. It's also in partnership with the UC Berkeley national laboratories, Milwaukee Area Technical College and Laney College – and us.

So let's discuss the three models of development – the three different models of development for these advisory boards. We had a commercial refrigeration advisory board that was primarily externally driven from the college. We had a building automation advisory board that was primarily internally driven; and then green technologies academy advisory board that turned out to be jointly driven.

The commercial refrigeration advisory board, when I say industry developed, obviously we had the vision within the institution; but the development of the board was largely due to the efforts of a well-

connected individual within the commercial refrigeration marketplace. He was the manager of a large supply chain for refrigeration parts. And so much like Dave at Kele, he served a pivotal role in establishing and bringing in people into the advisory board for commercial refrigeration.

Leadership came from primarily within the advisory board itself. There was nobody at GPTC with significant commercial refrigeration experience. And so while the management and coordination took place at the college, the primary driving forces were provided by industry. There was tremendous support and vision, which manifested itself in in-kind donations and cash donations, but primarily in-kind donations of time, materials, et cetera. And again, the coordination, management and implementation was conducted primarily from within GPTC, and Mr. Gerald McWhorter, again, was very instrumental in managing that advisory board and developing and implementing the vision.

The commercial refrigeration advisory board consists of approximately 20 active industry partners. They've provided hundreds of thousands of dollars in in-kind donations and some cash donations. They've reviewed all curriculum development within the board's continuing process that they provide feedback on.

They provided the design of the laboratory facility in consultation with us, but the primary design and the engineering drawings came from the industry advisory board. They provide ongoing guest lecturers. Many of the companies participate and provide lecturers to our students, and we have internship agreements with a lot of the members of the board.

Moving on to the building automation advisory board, this is a little bit different. GPTC developed the advisory board, and leadership came from primarily within the college because we had people at the college, including myself, that had significant industry experience. And so we were able to provide and select the proper – invite the proper individuals from industry to serve as pieces of that puzzle for the advisory board.

Again, there was tremendous support for the vision with in-kind donations primarily and cash donations. And again, the coordination and management and implementation came primarily from within the college itself.

In the building automation advisory board, we have also approximately 20 industry partners who are very active; hundreds of thousands of dollars in in-kind donations and cash donations. They also reviewed curriculum; helped to design laboratory facilities; provide guest lecturers; and we have internship agreements with those companies.

And finally for the green technologies academy advisory board, this was developed and the vision was provided from within GPTC. Both the commercial refrigeration and building automation sectors, as Dave previously mentioned, are very green as far as jobs and opportunities because they both deal with efficiency and equipment.

The leadership was equally evident from industry and GPTC because we had a common interest in sustainability and the environment, so it wasn't difficult to motivate people to action. There was tremendous support for that vision, as is evidenced by participation in donations primarily of time and energy. And again, coordination and management and implementation came primarily from within at

GPTC. The advisory board itself consists of approximately 15 industry partners and they did very much the same activities that the other two boards did as well.

Some common threads linking the advisory boards together – some takeaways that we've learned from establishing three strong boards. You have to find and establish early on a vision for the board and for your institution. You have to have strong leadership, and that could be provided either internally or externally. It primarily comes from one individual or a couple individuals who have a real vision and have an ability to motivate others on the board to take action.

The benefits and motivating factors were discussed early and often. Companies that participate in advisory boards, although we would like to think that they do it for solely altruistic motivations, we all know that that's not the case. And so in the very beginning, in the establishment of these boards, we had an open discussion and dialogue with the individuals and asked the question, what do you hope to attain and gain from your relationship with our college? And we openly shared our motivation and goals as well, and that paid big dividends down the road.

Careful attention to selection of members and close monitoring of board dynamics. As with any board, you'll have some individuals that are internally motivated; some are externally motivated; some have their own agendas; and some don't get along well with others. So you have to keep a close eye on the board dynamics.

And if you have an individual who is not adding to the efficacy of the board and is detracting from it, you have to cull that individual very quickly from the board or it can have an effect on the activity and the productivity of your board. And we had to do that several times with each of the boards.

And so the next question is maintaining productivity. The one thing we continually asked ourselves is what is it that will keep each company engaged? Answering that question and providing opportunities for your board members to realize whatever it is their goals are goes a long way towards maintaining productivity.

And I've listed some here that could be motivating factors, like a commitment to the industry – which we'd all like to think is the primary motivating factor, but oftentimes it's not; a source of new employees; professional development opportunities for their technicians within your program itself; opportunity for publicity – that's a pretty big one, sales, marketing, et cetera; opportunity for sales to your college; keeping an eye on the competition – what's the competition up to, what are some new developments, some new products. That was a big one as well. And then training for current employees.

Having an updated, detailed program of work and having regular meetings at least once per quarter is also critical to maintaining interest and participation and productivity within your board.

So what questions should you ask yourself if you want to have an active advisory board? The number one question you should ask yourself is, where will the leadership and energy come from that will drive that board to take action and keep that board productive over the long term? As with any advisory board – and I think most of the programs at our college have advisory boards – you can pick up the phone and call individuals and say we have a meeting, we have an advisory board meeting; I'd like you to participate.

The real question is, will that individual be motivated to come back on a regular basis and maintain a connectedness to the college and be productive? And I would submit that if you don't have strong leadership and energy, that individual will soon lose interest in coming back to your advisory boards.

Will my college be able to keep the board engaged and productive and provide the benefits the board members are looking for? Again, go back to the question and ask yourself, why is this company representative involved or what is their interest in being involved in my college? Once you answer that question and find the motivating factor, you can try to provide opportunities to keep them engaged and productive.

Who in my institution will be responsible for managing the board? It takes a lot of work to maintain an active advisory board, and you have to keep up with minutes and agendas and keep them engaged and not let them forget about you. So you have to identify an individual, even if the leadership is not coming from within your organization or your college. You still have to find an individual that can manage that energy that's coming out of the board or they'll soon lose interest.

What type of advisory board should I strive for? Should I strive for one that's internally led? Do I have that expertise within my institution, or do I have to reach out from the institution and find somebody who's well-connected that can make things happen on the board?

Should it be externally led or should it be jointly led? In many sustainability advisory boards there's a motivating factor – to take action for the environment that you can play into. That board – our green technologies board was not as motivated to provide in-kind donations, but they were certainly motivated to provide time and energy and expertise to our board. If you can find a career path that matches well with green technologies or sustainability, which we have identified, it's much easier to attain in-kind donations and cash donations, we found, if it's tied directly to a career pathway.

Is there a clearly defined programmatic or collegiate vision the board can buy into? For this we look at our collegiate goals and outcomes and things that the college wants to see take place with our students and also tie them to our programmatic outcomes. And that formed the basis for finding our vision within each program.

So some outcomes of the work that we have endeavored to do at the college. I've mentioned before that we had the first associates of applied science degree in building automation. We have true industry education partnerships. We have a lot of companies that are fully engaged with our institution and have maintained that engagement over five years.

A multi-million-dollar laboratory – the majority of equipment which was donated by the industry. We are in a budget crunch, as are many other institutions, and we had to reach out and work with industry to get the kind of equipment we needed to train our students.

We use our facilities as living laboratories, and this is supported by industry partners who currently have projects where building automation companies are donating the equipment, the expertise and the startup, and our students are running the conduit and the cables and sensors to put in and make more efficient our buildings on campus. And we'll be discussing at the ASHE conference next month.

Collaborations with other colleges were primarily driven from their interest in how did you gain these great industry partners, and how can we gain those? Well, we shared what we had learned, and we learned a lot from those institutions as well.

And a new revenue stream from the college – I take this is the final slide. We've had great student placement; 75 percent in field; much higher percentage of placement overall and average starting salary of over \$50,000 for building automation. The first two and a half years, we witnessed a 400 percent growth of student count in those areas. We've seen a little dip in our program count currently, as many other institutions around the country, but there are many reasons for that at our institution, because we've had a lot of changes in the last year. That number count, we expect to significantly increase again starting in January.

New innovative collaborations beneficial to students, which were presented primarily by those industry partnerships, and a continued high level of industry involvement.

And the last thing I'll mention again is the National Science Foundation adult and technical education center. It's centered at Laney College and headed by Peter Crabtree as lead institution. Most of you who are on the call represent community colleges, and the mission of this is to disseminate the work we've done at Georgia Piedmont, Milwaukee Area Technical College and Laney College, and provide that template to a national audience; and not just for advisory boards, but the BAS program; the sustainability programs developed at Milwaukee Area Technical College and then the programs developed at Laney College as well.

And one other outcome we'll be discussing at the ASHE conference is the retrofit of a building with the support of industry partners and our advisory boards, who provided the technical expertise and also the equipment to make that renovation possible.

And just a couple slides from some of our students and some of our work.

And I'd like to thank everybody. I'd like to send a special thank-you to my colleague at the college, Mr. Gerald McWhorter, who has been instrumental in helping to make this happen; our new president, Dr. Jabari Simama; Dr. Tanya Gorman; Dr. Daisy Davis; Julian Wade; our division chair, Natalie Costas. I'd like to also thank Dr. Joanne Chu; all the folks at the NSF; and last but not least, my partner in crime, Dave Weigel; and Todd Cohen and Candy Center for making this webinar today possible. Thank you.

MR. COHEN: Thanks, Brian. So I urge you all, start posting your questions if you haven't already. Let me kick it off with a couple, though.

Brian, could you say a little more about – so through the ATE, you'll disseminate some information. Can you just talk a little bit about how you envision possibly doing that and what the timeline is for getting that up and going?

MR. LOVELL: For the ATE center?

MR. COHEN: Yes.

MR. LOVELL: Yeah. We'll be kicking that off in Washington, D.C., on October 28th. And the mission of the center is to disseminate, for one, this building automation program to a national audience. There will also be other programs that will be disseminated, all surrounding sustainability and efficiency. And anybody is welcome to get more information and participate in this grant. There's funding available to disseminate these programs and actually come to your institutions.

There's also money available to have you come to our institution in Atlanta and also Milwaukee and in San Francisco at Laney College for a national conference, the first of which will be held early next year, in January or sometime in February. The date has yet to be determined. But it will be our first winter conference.

MR. COHEN: Got you. I see some questions, but let me ask this one, too. Can you say a little more about the internships? You talked about, at least in a couple of those boards, some agreements you have with the companies. Can you say a little more about that, what that looked like, and how that serves some of the outcomes you've seen?

MR. LOVELL: Sure. It's a capstone course for our programs, that the students have to perform an internship. At our college they can perform the internship at the college itself, participating in the living laboratory opportunities that are overseen by industry. And they'll be doing the same things that they would be doing in the field – running conduit, pulling cable, connecting devices, et cetera.

They also have the opportunity to go out to our partner companies on the advisory boards and go out weekly for 16 weeks to that company for a minimum of eight hours per week – so a full day of work – and shadow a technician. Our student liability insurance covers both opportunities for the students because they are written into the curriculum that they will have to perform that internship. Companies love it because they have a chance to observe the work ethics and the technical skills of our soon-to-be graduates. So it's been a very rewarding experience for the students, from what we've gathered.

MR. COHEN: Great. All right. So Dave, this is probably for you. Can you give us a sense regionally, I guess around the country, of where there may be higher demand for – (inaudible) – workers? Or does it necessarily break out like that?

MR. WEIGEL: Actually it breaks out by the population of states, and it's very evenly spread, which of course means there's less demand in North Dakota and Alaska and tremendous amount in California, Texas, Ohio, New York. Yes, we have analyzed that in great detail. So there's not really a geographic level of lower demand than anywhere else, other than in every other piece of the economy where the population is smaller.

MR. COHEN: I got you. So does it matter, though, so you've got some states that are just – and regions that are just simply more progressive around building codes, things like that? That doesn't necessarily matter, or does it?

MR. WEIGEL: It matters to some extent, especially California, where all buildings must comply with the Title 24 energy code, which is extremely strict. So buildings that go up in California or have major

retrofits where they have to meet codes will have much more work to do for the building automation systems companies. That could be a driver of a little bit higher demand for labor in that area.

MR. COHEN: Got you. Somebody asked, is this existing research that supports building owners to desire for certified energy efficient buildings?

MR. WEIGEL: Yes, and we don't maintain a repository of that. But I believe it's freely available from the U.S. Green Building Council, and there's probably some publicly available knowledge in that area from ASHRAE – the American Society of Heating, Refrigeration and Air Conditioning Engineers; and also the Department of Energy's EnergyStar program.

MR. COHEN: Got it. Thanks. And then Brian, this one's for you. Are you training your students in utilization of energy management technology software? And if so, what's your approach?

MR. LOVELL: Yeah. We train them on the principles. This is a discussion we had early on on our advisory board – how far do we drill down into specific proprietary software? And the answer that came back, almost universally from the advisory board, is we need to train on the principles of both building automation, energy efficiency, et cetera, and expose them to different software packages. But we don't specifically instruct on any one software particularly.

When we do spend some time with our students – and Dave has been instrumental in providing some training to our students – in E-Quest and providing energy modeling for facilities through the freely available E-Quest software from the Department of Energy.

And Dave, do you have any other comments on that question?

MR. WEIGEL: No. I think you covered that well.

MR. COHEN: Great, great. And this is a great question. So especially maybe it's just in the green technologies area, but does that curriculum intersect with any of the gen ed programs, liberal arts-focused programs, that may be going green or have the possibility of going green? Is there any connection?

MR. LOVELL: I'm really glad you asked that question. Yes, there's a strong connection there. We've been exploring those connections with our partner institution next door, Georgia Perimeter College, which is a liberal arts two-year community college. And we found that there are major intersections with engineering programs, physics programs and even mathematics.

So we've engaged those students and provided opportunities within our facilities and our buildings for them to participate with our building automation students. The building automation systems program is a great way to leverage facilities for learning opportunities for not just technicians, but for other general education programs. And we will be discussing that as well at ASHE next month.

MR. COHEN: Thanks, Brian. And someone notes that the associates degree requires pre-calc. Do you guys have a high rate of developmental math placement? And if so, how did you tackle that requirement to textualize the coursework, et cetera?

MR. LOVELL: Yes. To be program-ready we firmly believe a student has to have at least pre-calculus, or, in other words, trigonometry to be successful within our industry. Even to understand phase and balances, et cetera, you have to have a background in trigonometry, so we require that.

And how we tackle that at our institution, we have a strong continuing education program and remedial program within our institution. And we make sure that our students, before they start the building automation program, have taken the series of math courses that will allow them to be successful within building automation. But still, math – I would suspect that at most other community colleges is a stumbling block for some students. And we just say that's something – you're going to be vigilant in obtaining those skills, and it's a skill set you're going to have to have to advance very far within the building automation sector.

MR. COHEN: Got you. And by the way, folks, I'm not going to necessarily answer every one, but we have noted them. And what we will do in some cases is have Brian and Dave answer a question on email and can send it back your way, just so we can keep moving on this stuff.

Brian, I'm wondering – you talked about career pathways. I wonder if you could dig in a little bit there, where you saw those opportunities within those programs you talked about and what came from that.

MR. LOVELL: Sure. I'll address that question with a focus on the building automation students.

As far as career pathways, there's so many available to building automation students. We put them with the organizations – everything from small contractors to large contractors, to Siemens, Honeywell, Johnson Controls, multinational conglomerate organizations. And they find a very easy fit, easy pathway for them is to start as a building automation technician and ride around and go to different facilities and identify control system problems and perhaps give a resolution to those.

We've also put students in sales positions – not so much the programming side because it takes a little bit more experience to be successful there. We've also had success with previous HVAC technicians coming into the program and matching the controls skills and then going back to their facilities, whether it's facilities management or it's working for an HVAC contractor, with a whole new opportunity to advance and jump into the controls marketplace.

If you think about it, we talk a lot about green jobs and green economy. Building represent the largest sector of energy use within the United States. And with a closer focus on energy efficiency, the opportunities for energy auditors and energy assessors and all this information flowing back from submeters back into the building automation system is going to require graduates with the skill set to be able to navigate within building automation systems.

So there are significant career pathways existing, and I think Dave and I – I think I can speak for Dave here – that we see tremendous opportunities for new pathways within building automation in the next few years.

MR. WEIGEL: Yeah. I'll throw in just this, as observing the program at GPTC, that during the final portion of earning their degree or certificate, the students are instructed in the methods and means of

designing a building automation system. So that gives them a little bit more of a foot in the door. Because unlike the technicians that we might have out there all over today, they have some of the knowledge to progress towards system designer – the person who lays out a system and tells the other technicians how to wire them up. So it's been a tremendous advance in the program.

There are also opportunities for these people to work at places like Kele. Somebody who comes to work at Kele, whether it's in sales or technical support, who already has a knowledge of building automation systems, is well ahead of someone who doesn't on their career path right away.

MR. COHEN: Yeah. And I guess along those lines, how successful have the internships been in terms of turning into potential jobs at the companies, generally speaking?

MR. LOVELL: I'd say they've been quite successful. We've had some students, of course, who've done amazing things with their internships, and others who haven't who have still gotten into the industry but have not been employed by that particular organization. It certainly is beneficial to the students in preparing for a career, but it doesn't always lead to a job within that company, for various reasons which may or may not have to do with the skills that they've learned.

Or most likely and most often it's more than soft skills that employers are really looking for. And if they don't see the proper work ethic or they don't see the proper attitude or any number of things – ability to communicate is a big one – there's not a whole lot that we can do to improve those skills, although we try in our program. But that seems to be where employers are really – if they observe their soft skills and they like those, there's a very good chance they're going to get a job with the internship company.

I'll give one young lady as an example, as she's actually in that last slide in the middle with the purple hat on. She went to work for a \$150 million controls contracting and mechanical contracting firm here in Atlanta, and she's now a project manager after a year of being turned out from the program. And she interned with that company; they absolutely loved her. But she's a good communicator, and that seems to be a big factor in whether the interns will acquire long-term employment by the companies that they're interning with.

MR. COHEN: Sure. And so I assume, Brian, that you've been incorporating some of those soft skills training into technical training.

MR. LOVELL: Absolutely. We got that feedback actually from our advisory board meetings, that when we surveyed them the responses we got were somewhat surprising, although they're what you hear on a national basis of employers' needs. And they focused on the communication, the soft skills – written and oral communications. And so when we received that feedback a couple years ago, we made those skill sets evident in all of our courses, from the beginning to the end.

So students have to practice presenting in front of the class. They have writing assignments in each course. You'd probably be surprised if you looked at our curriculum how much we do focus on those communication skills. But we only see the students for a maximum of two years, too, in our classes, so there's a limited impact you can have there. But we do our best.

MR. COHEN: Great. Someone wants to know about online coursework. Have you built that in? Where do the advisory board members land on that.

MR. LOVELL: Yes. We have online coursework that's done in each course. We call them hybrid courses. Most of the courses are less than 50 percent online work. We have set up some special arrangements with people that are outside of the city because this was a very rare program within the country, but those individuals would have to come at some point and do the psychomotor or the hands-on work at GPTC.

We've done it – we have made special accommodations for students out-of-state. But primarily they're going to get more than 50 percent of whatever they learn from the course within the class itself, from lecture and psychomotor laboratory experiences. But again, every course does have an online component to it to supplement the learning.

MR. COHEN: Got it. Brian, I want to go back to something you said, and Dave, I'll incorporate you in this, too.

So the green technologies advisory board, you mention some companies there with some interest and passion for sustainability. I wonder if you could say a little bit about what kinds of companies – not necessarily name it – but just what kinds of companies those were and a general sense of when they were thinking about sustainability and their passion, what was it specifically that brought them and the college together?

MR. LOVELL: That's a good question. We found that we had a larger predominance of smaller organizations – water harvesting companies, solar companies, solar thermal organizations, and also educational partners. We had more educational partners within that advisory board, too, like other universities – representatives of other universities.

And there was a common concern and interest in environmental sustainability issues that we really tapped into. I think that was the primary motivating factor. It wasn't hard to get interest and support and a steady turnout from that advisory board. What turned out to be more challenging because of the size of the organizations was attaining in-kind donations of cash and equipment. So we didn't – on any advisory board – push for that. We laid out our needs, and either the companies stepped up and addressed those needs or they didn't. But I'd say that was a primary motivating factor for those companies.

I will add onto that, that if you can give an industry career path focus to that energy that those folks on the sustainable technologies advisory board had, then you've got a winner; because then you have a clearly defined pathway that has clearly defined skills for employment, that employers are willing to – we found – devote a lot more equipment and cash and support to because you're now focusing on an industry.

And the building automation industry, Dave and I are convinced, is the greenest industry that's out there. People just don't talk about it or know about it. There are others – there are many others out there; refrigeration, for instance; air conditioning, automotive, that can combine the sustainability energy with a

clearly defined career pathway and you can marry the two, then I think – we found that's kind of a winner.

MR. WEIGEL: Yeah. Another issue that illustrates this very well that isn't well-known around the country is the larger building automation systems companies require a green attitude of the people who sell things to them. I won't name a name, but Kele has received audits for our sustainability, our recycling, our use of environmentally-friendly materials, our transportation of items locally. And unless you pass it three years in a row, they're going to consider buying their stuff elsewhere.

MR. COHEN: Wow. So that update – I want you to say more about this. So when you say "green attitude," is that just a passion for, an understanding of, an ability to apply that – as you say in this case, as sort of reducing waste – how do you demonstrate that?

MR. WEIGEL: You fairly must demonstrate it – for example, this one company I'm thinking of gave us a checklist that very closely mimics the LEED requirements – the requirements to earn Leadership in Energy and Environmental Design certification for a building. But it went a little farther and included the company.

A green attitude means that if we weren't originally considering these things to be important, it's time to change that attitude, and the larger organizations in the industry are pushing you to do that.

MR. COHEN: That's great. OK. So we've got five minutes. What I'm going to suggest that we do is move over to chat territory. So there's still some questions folks have asked that we want to try to get to. But I think the fastest way to do this is just rapid-fire chat. So I hope folks will stick around, and Brian, Dave, stick around for a few more minutes and just kind of try to hammer out some of these questions?

MR. WEIGEL: Sure.

MR. COHEN: OK. And as you do that, Brian and Dave, you'll notice some of the questions that you see posted there. If there's some there that you want to take a crack at now, let's do that.

But let me say just thank you to Brian and Dave for their time in putting this together and sharing with us today, and for all you out there listening. It was great information. We'll make this available – the PowerPoint will be available.

Brian mentioned the ASHE conference, and he's going to be part of a half-day training session in L.A. in a few weeks. So if you get a chance to get out there, we'd love to see you.

And with that I'm going to turn it over to the chat.

MR. : OK. Participants, I've changed the look and feel of your screen where you'll see an open chat – the big white field there. At the very bottom you can go ahead and continue to type in your questions. The presenters, Dave and Brian, will address them. So we'll keep the room open and they'll address your questions. The ones that were submitted previously – I know some of them were already addressed verbally, but Brian and Dave are seeing those questions as well on their screen version. So they could

address any ones that remain outstanding. But otherwise, feel free to offer up any other questions or comments you have and let the presenters address them accordingly.

MR. COHEN: Thanks, everybody.

MR. : Thank you. Have a good day now.

MR. LOVELL: Thank you.

MR. WEIGEL: Thank you.

(Background noise.)

MR. COHEN: Hey. We're still live. Hey, Brian, Dave, your call. If you want to answer some of these questions verbally, you can do that, too.

MR. LOVELL: Verbally? I might take a crack at some of them while Dave answers them on email.

MR. COHEN: OK.

MR. LOVELL: It says, "Does your sustainability curriculum intersect with any general education or liberal arts-focused or transfer programs?" I think we addressed that already. The brief answer is definitely it does, especially with engineering, physics, mathematics in particular.

Number six. "We are implementing a building of energy management system with Chevron. Additionally, we have funds to implement a complimentary building controller system which can manage light and other energy appliances such as refrigerators. Our goal is to install motion detectors and a timer system. Any wisdom you'd like to share about the installation of controllers?"

Oh, there's a lot that we could share there. I would just suggest in that case to try to contact us directly and we could have some maybe offline discussions about that. That's a pretty technical subject, I think, and not appropriate for a short answer.

MR. WEIGEL: Yes. Please pardon my short answer to it in the chat.

MR. LOVELL: Number seven. "I note that the AAS requirements require pre-calc." Yes, I think we've discussed that already. That's very important to the building automation sector. For technicians to be successful they have to have a pretty solid math background.

Number eight. "Have you included smart grid technology within your program? And if so, would you be willing to discuss that with our faculty, who are developing a smart grid certificate?" We're always open to talking to anybody who's developing anything within the sustainability or building automation sector.

"Smart grid" is a nebulous term, actually, that probably requires a little bit more definition, so we'd certainly like to know what you're doing there. Dave, do you have any comments on that?

MR. WEIGEL: No. Nothing to add to that. That's more of an academic – (inaudible). That overlaps with building automation and green technologies. I would have to think about how that would fit in.

MR. LOVELL: Number nine. "Do you have any online courses? And how have your advisory board felt about online learning?" They're supportive of it, but I think almost to a man on the boards, they all agree that our industries require a significant amount of hands-on experience to make the students comfortable with various technologies. So yes, they all have online components, but our advisory board has really been supportive of face-to-face delivery whenever possible as well.

MR. COHEN: Hey, Brian. There's a question from Olga (sp) on the chat. I think she posted a couple times. You have a thought on that one?

MR. LOVELL: OK. Let me see here. "If you were successful with your advisory board, how did you entice your partners" – oh. That's definitely one question I wanted to answer; I saw it come through.

It was different on both of the boards. There's two different ways – and this goes back to the internally driven and externally driven advisory boards. With the commercial refrigeration board, there was an industry representative who was super-well-connected within the industry who really drove the selection of other advisory board members.

Within the building automation board itself, I literally, having been in that industry for 20 years, first of all looked to get the major names involved. As soon as you do that and you get decision makers, leaders within those organizations involved, you've got leverage to get the others involved, if for no other reason that the other companies want to know what's going on.

Once the board was developed, primarily what I looked for – it was easy to entice them because they knew something was going on. There was energy there; we were progressing with our development. It was new. It was easy to get new board members involved, and we could have had a hundred if we wanted them. But then the question was, are they going to fit into that dynamic properly? Is this an individual who's not a salesman, necessarily, but somebody who has a pretty strong control of their schedule and is in a position to go straight to the top and lobby for involvement and for donations to the program? What would they lend to our advisory board?

So I would say in the beginning – to answer the question – I would say look for a good balance of industry representation. And moving forward, look for somebody who's going to fit into that dynamic very well.

MR. WEIGEL: This is Dave. I'll add that at Kele we were enticed by our need at the time for more employees. And I believe that applies to a lot of the members of the board. This lack of trained technicians to hire is one of the driving forces for all of us to have GPTC put this program together.

Kele was founded by a fellow who wanted to put together a Kele university and teach people all about building automation. But when you get down to that, we're not an educational institution. The community colleges and technical colleges is where that belongs. So we were happy to help.

MR. LOVELL: I see this question, "How does all this good work you are performing interface with advanced manufacturing offices' industrial assessment programs?" I don't know, because I don't know much about that. I would like to learn more, though.

MR. WEIGEL: I'm not familiar with that, either, Brian.

MR. COHEN: Brian, are you willing to throw your contact info up on the chat?

MR. LOVELL: Oh, absolutely. Should I just type it – should we type it at the bottom there?

MR. COHEN: Yeah. Just type it there.

MR. LOVELL: OK. (Pause.)

MR. COHEN: And then while you're doing that, somebody wants to talk about scholarships. Anybody on the board provide scholarships to students they thought were worthy?

MR. LOVELL: Yes. We have had several, including actually ASHRAE has given several scholarships to our building automation students. Home Depot has selected two of their – two years in a row we've had a national Home Depot scholarship winner for excellence in technical education. Our advisory board members have offered incentives and scholarships in supporting students, and that primarily was in the commercial refrigeration advisory board, and they were eyeing those students actually for employment. They identified them early on and supported them throughout their educational experience at the college.

MR. COHEN: Great, great. And this is a great question from Terry here. What involvement, if any, did your senior leadership have at the college around the boards? Were they involved at all or was it just you leading the charge?

MR. LOVELL: Absolutely. After we established a vision and they saw that this was going to have a major impact on the institution itself, we had tremendous support from our VPAA, Dr. Tanya Gorman. Our dean of academics, Dr. Julian Wade, I don't think he ever missed an advisory board meeting for either board, and there were so many. But he was always there. Our division chair, Natalie Costas – yes, significant support.

Now, I will say also we have had budget issues in the state of Georgia, as I'm sure many other institutions have. So while we're able to do some things in the lab, like give us a new floor and help to renovate, primarily the drivers of the activity as far as donations of equipment, et cetera, made the laboratories possible. So it was a real partnership between the two – the administrators supporting it to the extent that they could and then the corporations getting behind it.

And there was a good balance there, too, because when they heard, after attending advisory board meetings, of the need for trained technicians, that really piqued their interest and maintained a real strong balance between industry and administration at the college.

And Dave, you witnessed a lot of that, too. Any comments on that?

MR. WEIGEL: Not on that particularly. But I'm looking ahead at another question on the board that says, "Are the board members' companies seeking retraining for their current employees to learn more of these soft skills or any of the new tech. It seems it would be an added benefit to the partnership." And the answer to that is yes.

Around the board it's growing but it's not really accelerating at the moment because the people don't have enough – they don't have enough technicians to get the work done. They're a little too busy to be retraining their own people, but they're doing it anyway.

MR. COHEN: I just want to be respectful, Brian, Dave. I mean, you committed to an hour, so we're over, obviously. I don't want to force anything here. So please jump off –

MR. LOVELL: This is a lot of fun, Todd. We love talking about this, so we'd be happy to stay.

MR. WEIGEL: Yes. I'm just not very good at typing in the chat room.

MR. COHEN: All right. Well, we still have a bunch of people here, so we might as well keep going, then.

But actually, Dave, let me ask the question that Brian was just talking about, with leadership. I mean, obviously Brian's incredibly capable to pull the board together, but when you saw the college leadership there, participating, did that have an effect on you? Did you get a sense that this was a bigger deal and it got you – enticed you to come more often? Did that have any role to play?

MR. LOVELL: Certainly I think it had. Dave could probably answer this better and I'll let him do that in a second.

But my perspective was for the board members to see that this is important to the leaders of the college. I really believe – I think Dave made the comment – that they wanted to see a commitment from the college as well if they were going to get behind this and donate equipment, which they donated – like Kele alone, \$200,000 worth of stuff, just one company – that they really wanted to see a commitment and an ability to pull it off, not just at the programmatic level but also a collegiate commitment. And that went a long ways, I think, to inspiring the board members.

MR. WEIGEL: Yeah. And there's also the factor of – or the analogy of – a stone creating an avalanche. When one board member gets on board and makes the commitment, it really eases the work that's involved in getting the rest to come along. And usually the first board member or two, they know all the other influential people in the marketplace who are maybe their competitors or maybe their customers or maybe their suppliers. So that really helps.

And Todd, I just want to throw in that I usually do in this presentation, that when Brian approached this with, here's my list of needs, and I went back to Kele with that list and turned it into model numbers of things we sold. And when I took this large number to our CEO at the time, Andy Kele, he glanced down and looked at the bottom line of how big it was and said, it's a no-brainer; do it.

MR. COHEN: That's great. I don't anybody typing anymore, so I'm wondering if there are people here. I think last call for folks; got a question, post it. You still Brian and Dave's email – go ahead, Brian.

MR. LOVELL: I'm sorry. I see a question that I'd like to address here. "Did your president or department program head do the culling of the boards? Or who do that?" Well, the answer to that is we did, either myself or Mr. Gerald McWhorter, my cohort. We closely monitored the dynamics of the board, and when we saw an individual that was primarily – in some cases, very overtly – pursuing their own corporate goals at the expense of good dynamic on the board, we'd first talk to the individual, and then after that we had to call a couple out.

Now, we had to go to administrators and let them know, look, we really think that the board would be more effective if this individual were not on the board. And so we got their support. It's another important aspect of having complete confidence support by your administrators. Because if they have a stronger focus on just how many industry partners they can get and what they can get from them versus the interests of whatever program you've developed, then you've got a problem. But we didn't have that problem at our college. We had plenty of support in making those decisions.

MR. COHEN: Great. Somebody asked about the PowerPoint, and I guess that is it right there. And also, just check back in a day or two at the SEEDCenter.org website. It'll be right there for you to pull out.

Dave, Brian, thank you so much. Appreciate your time on this.

MR. WEIGEL: Thanks for the opportunity.

MR. LOVELL: Yes. Thank you, Todd. We appreciate the work that you and Candy and everybody else does at the AACC-SEED Center. You've really helped us out a lot as well, so we appreciate that.

MR. COHEN: Great. And good luck with the ATE stuff. That's fantastic.

All right. Thanks, everybody. Stay tuned for the next one.

MR. : Have a good day.

(END)