THE BROOKINGS INSTITUTION

REGIONAL INNOVATION CLUSTERS:

ADVANCING THE NEXT ECONOMY

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PARTICIPANTS:

Welcome and Framing Remarks:

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Keynote Address:

THE HONORABLE GARY LOCKE
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PANEL ONE: CLUSTERS AS JOB CREATORS

Moderator:

WILLIAM BATES
Vice President for Government Affairs
Council on Competitiveness

Panelists:

ALBERT GREEN
Chief Executive Officer, Kent Displays

HELEN GREINER
Founder, iRobot

ALLISON HOOPER
Founder, Vermont Butter & Cheese Creamery

ASHUTOSH MISRA
Senior Vice President, Ascent Solar Technologies

PANEL TWO: REGIONAL ACTORS STRENGTHENING CLUSTERS

Moderator:

MATTHEW CHASE
Executive Director,
National Association of Development Organizations

Panelists:

BETSY BIEMANN
President, Maine Technology Institute

RICHARD LUNAK
President and Chief Executive Officer, Innovation Works

LUIS PROZENA
President, The University of Akron

DUANE ROTH
Chief Executive Officer, CONNECT

LUNCHEON KEYNOTE

Introduction:

DEBORAH WINCE-SMITH,
President and Chief Executive Officer, Council on Competitiveness

PARTICIPANTS (CONT'D):

Speaker:

JOHN LECHLEITER
Chairman, President, and Chief Executive Officer
Eli Lilly and Company

AFTERNOON FRAMING REMARKS

Introduction:

SARAH ROSEN-WARTELL
Executive Vice President, Center for American Progress

Speaker:

JASON FURMAN
Deputy Director, National Economic Council

PANEL THREE: FEDERAL CLUSTER POLICIES AND INITIATIVES:

Moderator:

KATE GORDON
Vice President of Energy Policy, Center for American Progress

Panelists:

JOHN FERNANDEZ
Assistant Secretary for Economic Development
U.S. Department of Commerce

KRISTINA JOHNSON
Undersecretary for Energy, U.S. Department of Energy

KAREN MILLS
Administrator, Small Business Administration

VICTOR VASQUEZ
Deputy Under Secretary, Rural Development
U.S. Department of Agriculture

CLOSING KEYNOTE

Introduction:

SARAH ROSEN-WARTELL
Executive Vice President
Center for American Progress

Speaker:

THE HONORABLE TOM VILSACK
Secretary of Agriculture
U.S. Department of Agriculture

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P R O C E E D I N G S

MR. KATZ: We've got to get started because Secretary Locke is on a tight schedule this morning. I'm Bruce Katz, I'm the Brookings Institution and director of its Metropolitan Policy Program. I want to start just by acknowledging our cosponsors today, CAP, the Council on Competitiveness, the National Association of Development Organizations. Sarah Rosen Wartell, the executive BP of CAP is going to be sharing some of the master of ceremony duties with me today and guiding the second half of the program. And Deborah Wince-Smith is the president and CEO of the Council on Competitiveness, will be presiding over this afternoon's lunch program.

So, we're obviously convening at a time of economic urgency and political and fiscal uncertainty. And I think since the beginning of this recession, a group of business leaders and policy and opinion-makers have instruction really for a new growth model that not only can create jobs in the near term but economic prosperity for the long haul. So these leaders understand there will be no return to normal since the economy that preceding the recession, consumed with bubbles and fueled by debt and consumption, was anything but normal.

And so our contention at Brookings Metro is that the next economy must be export-oriented, low-carbon, innovation-fueled, and

opportunity-rich. And that's a vision where we export more, we waste less, we innovate on what matters, we produce and deploy more of what we invent, and we ensure that the benefits of growth are broadly shared across American workers. So to build that kind of economy. it's clear that you must overhaul how the public and private sector engage in key issues whether it's trade or energy, or infrastructure or manufacturing, education and skills of our work force.

But, clearly, the macro moves are not sufficient because, ultimately, the economy does come to ground, and clusters and concentrates in real places, you know, whether that's major cities and metropolitan areas that are global leaders in the production of goods or services, or non-metro areas that also relate to the big cities and metros but also specialize in agricultural production and resource extraction.

So there's a spatial geography toward economy and for that matter the German, Chinese, and Brazilian economies, and if we're smart, we'll leverage the power and potential of regional innovation clusters to advance the next economy.

As Mark Muro and I assert in a paper that was prepared for this convening, this is a cluster moment. So this is where they usually have the Voice of God, a cluster. A cluster is a geographic concentration of interconnected firms and supporting and coordinating organizations like

research universities, labor market intermediaries, and business associations. And clearly, clusters are the pulse of regional local economies and therefore the national economy. They're the seedbeds of innovation, productivity, and entrepreneurship whether it's Silicon Valley or whether its the aircraft hub in Wichita, or whether it's cheese-making in Vermont, or many of the other clusters we'll talk about today. They're the means by which real companies in real places complete transactions, share technology, develop innovation, start new business, and, yes, create jobs and locate workers.

Now, the reality of clusters is not new. Our friend and college Michael Porter at Harvard Business School introduced the concept of policymakers 20 years or so ago. What is new is that a body of empirical literature has emerged over the past 20 years that provide conclusive evidence about the benefits of clusters to firms, workers, regions, and ultimately nations. And what also is relatively new under the Obama administration is the federal government engaging on clusters to maximize its investment and help businesses grow jobs by bringing alignment and order to the legacy of economy development and other policies that are fractured, siloed across and within governments.

So at a time when we have to think very, very carefully of every public dollar spent and maximize and leverage resources and find

bipartisan common ground, clusters are a very compelling and worthy concept in any economic policy debate.

So we have a great lineup of folks today. These are not campus or policy world scholars but folks on the front lines of experimenting with new federal policy ideas in this area or running companies and working in regional cluster initiatives. They're well-positioned to discuss, describe how regional innovation clusters contribute to business success, how cluster dynamics can be influenced to promote economic growth, and how policymakers, notably at the federal level, can engage and respond in cluster realities.

Our plan is to start by letting you hear the big picture from Derek Douglas and Secretary Locke. The we want to hear from four people who are running companies, creating jobs, and attributing some of their success to the regional clusters in which their company is imbedded. After that we'll hear from some regional leaders who will give us a feel for how clusters work and the challenges they face in enhancing them. And then during the afternoon, we'll weight in deeper on the federal response.

One last thing before I introduce Derek, I wanted to give a brief salute to Ginger Lew of the National Economic Council, whose been called away to a death in her family, but we have come to respect her enormously, really, as the mother of invention when it comes to weaving

together the present round of federal experiments as we saw with this recent ERIC announcement. She is here in spirit, and we wish her family the best.

So with that I want to introduce Derek Douglas. Many of the folks in this room know Derek. He serves on the White House Domestic Policy Council as a special assistant to the president on urban and metropolitan issues. Prior to the White House he served as Washington counsel to New York Governor Patterson, Associate Director of Economic Policy at CAP. He's been a good friend to us here at the Metro program over the last couple of years, and I'm delighted to give the floor over to him.

Derek? (Applause)

MR. DOUGLAS: Good morning, everybody. It's really a pleasure to be here today with so many good friends and colleagues in the audience. I want to first start by thanking Bruce Katz and the Metropolitan Policy Program. Bruce and Mark Muro and Amy Lew have been at the forefront of regional innovation policy, cluster policy thinking, and have been tremendous allies and collaborators with us in the White House, not just on our regional innovation work but on our broader urban and metropolitan policy agenda.

I also want to thank the organizations that are co-hosting

today's event, the Center for American Progress which, by the way, I used to work at a few years ago, so it's special to me that the Council on Competitiveness and the National Association for Development Organizations, who have also been leaders in this work.

Bruce just laid out a compelling case for the critical role that regional innovation clusters can play in our broader economic strategy. And in listening to him, it causes one to ask themselves, what can I add to that message? Because when you hear Bruce talk about these things, it's so compelling and persuasive that it seems like an open and shut case, we got to do this. But what I'm here today to do is to not only reinforce the arguments that Bruce had made about the importance of regional innovation clusters, but also to make clear that President Obama and this administration believes it is essential that the federal government be an active participant in making this happen.

Now, everyone knows President Obama is an evident-driven president, So it should come as no surprise that regional innovation clusters are emerging as a vital part of his economic agenda. We know from hard economic data that clusters are more likely to generate favorable economic outcomes than more conventional models of economic development. There is strong evidence that clusters lead to higher wager, increased business spinoffs, enhanced exports and global

trade strengths, and greater regional economic productivity. There's also evidence of strong correlation between GDP per capita and cluster concentrations as well as clusters and patenting rates. And as Mark and Bruce point out in their paper "The New Cluster Moment," new research confirms that strong clusters foster innovation because of dense knowledge flows and spillovers that positively influence regional economic performance.

But in addition to the empirical evidence, we have a number of home-grown examples that demonstrate the merit of supporting regional innovation clusters at the federal level. Through my travels across the country, I've seen how established regional clusters like how established regional clusters can stimulate innovation and improve productivity in large metropolitan places like Boston's 128 Corridor, Silicon Valley, and the Research Triangle. I've also seen in places like Flagstaff, Arizona, what emerging clusters can do to transform the regional economy.

In Flagstaff, they've woven together public and private resources to cluster and incubate emerging technology businesses like wind, biotech, and solar power. When we were in Flagstaff, we met with leaders from Northern Arizona University and the Northern Arizona Center for Emerging Technologies which is the business incubator funded in part

by a $2.5 million EDA grant that was matched by the city. That funding helped to leverage over $30 million in private funds, and in a short period of time NACID, the incubator, incubator 11 companies, and created 80 highways jobs with an average wage of approximately $90,000.

One of the companies we met with, Southwest Wind Power, has produced over 160,00 wind generators which have been installed in 80 countries around the world. Flagstaff Mayor Sara Presler calls their approach “economic gardening,” and I think that’s an apt description because by clustering and incubating businesses in the energy sector, they’re planting the seeds for local businesses to flourish in and help drive the broader regional economy.

We’ve also seen how clusters can be utilized to transform rural communities like the food-processing cluster in Appalachian Ohio, and in places like Pittsburgh we’ve seen how inner-city clusters can be linked to regional economies while at the same time serving a neighborhood revitalization function for distressed communities through programs like Heinz Foundations Innovation Economy Program.

Now, this connection between regional innovation clusters and neighborhood revitalization is a vital one, I think, because when we’re stimulating economic activity, we must ensure that it promotes shared prosperity and broadens opportunity at all levels, both among people from

high-income to low-income in places metro cities and neighborhoods.

So I want to close by where I started and reiterating the president and this administration appreciate the critical role that regional innovation clusters must play in driving our economic recovery and boosting the competitiveness of American companies. And today you will hear from a number of my federal colleagues who will detail how across the federal government and in an unprecedented collaborative and interagency fashion we have begun the work of advancing and supporting the development of innovation clusters throughout the regions of our nation. And this work is not accidental; rather, it is part of a coordinated and comprehensive strategy to embed regional innovation cluster principles and approaches across the economic development work of the federal government so that resources can better incentivize and support regional cluster strategies.

So we're taking steps to develop a coordinated approach to our regional innovation cluster work. We're making targeted investments in data analysis, planning, and capital access and improvements to support RIC activities and are working to incentivize regional collaboration across the diverse set of stakeholders. We're visiting RICs across the country to learn from the best practices on the ground, but there is much more work to be done because for this regional innovation cluster

paradigm to take hold in America, it will require us and the federal government working with you in the field, private sector, the anchor institutions, philanthropy, nonprofits, to both educate and demonstrate the value of this approach for society.

But the field must continue to lead for this to be sustainable. The federal government must be, and we're committed to be, a strong supporting actor in this movement. That's why I'm so excited about the conference today and the conversation that we'll have where we can learn from all of you what more we can do at the federal level to support the great work you all are engaged in.

Thank you. (Applause)

MR. KATZ: It's my privilege now to introduce the Secretary of Commerce, Gary Locke. As folks know, the Secretary is charged with implementing the president's very ambitious agendas to create new jobs and ramp up employment, and turn around the economy. I'm sure many of you heard him speak about the national export initiative last week, which is the administration's effort to double exports in the United States over the next five years.

I think his past experience as governor of the State of Washington obviously prepared him well for this job because that state and the greater Seattle metropolis is so fundamentally connected to the

growing Asian markets as well as the Mexican and European markets. During his tenure as governor, the state created hundreds of thousands of new jobs.

So Secretary Locke, we thank you for joining us today, and we look forward to hearing about the direction you are taking the Commerce Department, particularly in regard to regional innovation clusters. Thank you. (Applause)

SECRETARY LOCKE: Well, thank you very much, Bruce, for the introduction, and it's really great to be here, and also to follow Derek Douglas, who works in the White House on these very important issues. And to all of you, thank you for traveling great distances and taking time out of your busy schedules for this very, very important topic. And I also want to echo Derek's comments in thanking our hosts today, the Brookings Institution, The Center for American Progress, Council on Competitiveness, and the National Association of Development Organizations. I want to recognize all of these great organizations for the tremendous contributions that you make day-in and day-out to our national dialogue.

Let me begin by saying that I believe that we're all in agreement that in these tough economic times we simply cannot continue to do what we've done in the past and hope that somehow things will get

better. The hole is too deep, and it took us nearly a decade to dig it. Still, it's important to remember how far we've come in the short time since Inauguration Day.

President Obama, after all, when he was sworn in was welcomed, handed to him a $1.3 trillion deficit projected to continue for the remainder of the decade; an economy that was shredding almost three-quarters of a million jobs per month. But the worst-case scenario many predicted never came to pass in large part because the president and the Congress took aggressive steps to stabilize the financial system, to pass a recovery act that created, demanded our economy with local governments, consumers, and businesses couldn't, or wouldn't, expand.

And many of you may have heard how these steps haven't been great for political poll numbers. But here's the stubborn thing about the story that the statistics tell: The steps worked. Today, for all the challenges our economy is still facing, for all the families struggling to keep up with their mortgage or to pay their bills or to find a job, we are moving in the right direction. After shedding jobs for 22 consecutive months, the private sector has now added jobs for eight straight months in a row.

However, the rebound is too slow and, while exports are up, GDP is up for four straight quarters, factory orders are up, and while

economists say that the recession technically has ended, there are still too many millions of people out of work, too many millions of people worried about their future. We simply have to get going and much faster.

But as we emerge from this recession, the question is where do we go from here? And the answers obviously cannot be backwards. The economic calamity that the nation confronted in January 2009 was not confined to the financial sector. Consider that from 2000 to 2008, America experienced the slowest job growth of any period of economic expansion since World War II. And America simply cannot afford to return to the pre-crisis status quo where we relied on bubbles, debt, and financial speculation, and where middle class families saw their wages flat-lined for an entire decade while the cost of things like tuition for college and health care went through the roof.

In today's globally competitive world economy, we need to build a new stronger foundation for growth and prosperity, one that is more export-oriented, one that is fueled by job-creating innovation, and one that is opportunity-rich. And strong evidence points to technological change as the primary driver of growth. Technological innovation is linked to three-fourths of the nation's post World War II growth rate. Importantly, innovation also produces high-paying jobs. Average compensation for per employee and innovation-intensive sectors increased 50 percent between

1990 and 2007, nearly two-and-a-half times the national average.

Now, we all know that America is not lacking for ground-breaking ideas, nor are we short on entrepreneurs willing to take risks. What we need to do is get better at connecting the great ideas to the great company-builders, and that's why regional innovation clusters are so important. We know what when you get businesses, government, academia, and nonprofits together in an area pulling toward similar goals, good things happen. Silicon Valley, Route 128 Quarter in the Boston area, the Research Triangle in North Carolina are all striking examples of innovation clusters done right.

So the big question is, what do we have to do to create more? And part of the answer is the work, which I'll discuss later that John Fernandez and our Economic Development Administration, or EDA, are doing. But we also need to start promoting the right kind of risk. Over the last few years, instead of working to engineer a break-through technology or build a great company too many of our brightest minds were busy engineering credit to false swaps, and we know how that story ended.

What we need to do instead is encourage innovators to make break-through discoveries that build businesses, allow people around the world to live healthier, wealthier, and more productive lives.

About a year ago President Obama laid out his strategy for American innovation which prioritized high growth and innovation based on entrepreneurship. The goal is to create a national environment right for entrepreneurship and risk-taking that helps the United States and its companies to become more competitive in a global exchange of ideas and innovation.

One way we're going to reach that goal is through our I-6 challenge. This is a new $12 million competition administered by the Commerce Department in partnership with the National Institutes of Health and the National Science Foundation,. Commerce is awarding $1 million each to six winning teams with the most innovative ideas to drive technology, commercialization, and entrepreneurship through the six regions of the United States divided up or delineated by our Economic Development Administration. NIH and the NSF will award a total of $6 million in additional funding to the small business innovation research grantees that that partner with our winning teams.

The program was announced last May, and today I'm pleased to announce the six regional winners of our I-6 competition. The first is the New Mexico Technology Ventures Corporation that'll focus on clusters for a New Mexico.

The second is a Global Center for Medical Innovation

covering the Southeastern United States.

The third is the Oregon Translational Research and Drug Development Institute, Oregon Dental Science and Microtechnologies Institute, Oregon Built Environment and Sustainable Technology Center focusing on the State of Oregon.

The fourth is Innovation Works, Inc, and Carnegie Mellon University covering the Greater Pittsburgh are.

The fifth is Biogenerator, Washington University in St. Louis, St. Louis University, University of Missouri, St. Louis, the Donald Danforth Plant Science Center, the St. Louis County Economic Council, and the St. Louis Development Corporation which, to no surprise, all of those are focusing on the St. Louis area.

And finally, the University of Akron Research Foundation, and the Austen Bioinnovation Institute in Akron, Ohio, covering Northeast Ohio.

These folks, and I think there are many of them here today, are tackling head-on with ground-breaking approaches and solutions, the challenges that face innovators and entrepreneurs. Let's give them a big round of applause and congratulations for winning the I-6 challenge. (Applause)

And we look to them to help create companies with a solid

foundation and a lot of growth potential. Actually, I see some of the people congratulating themselves. All the representatives of any of those organizations, please stand up. Let's give them -- let's recognize them and give them a big round of applause. Come on, there they are. (Applause)

Great. All right. You know, we -- we know the types of places where businesses thrive, their habitats, their science and technology parks, the laboratories and business incubators, places where entrepreneurs, scientists, product developers, and venture capitalists are clustered together; places where innovations can not only be developed but also brought to market; places where new businesses have a chance to grow, places like the Arizona Biosciences Park in Tucson and the Virginia Tech University Institute for Advanced Learning and Research in Danville.

If you think about the iconic areas that I mentioned earlier, the Research Triangle, Silicon Valley, 128 Corridor, they aren't towns or cities, they're regions that are working together to create the best climate for businesses. And this ecosystem has several common elements, a talent pool that connects across disciplines, an innovation infrastructure with physical facilities, a skilled work force, access to capital, and a support system that can shepherd promising innovations through the so-

called Valley of Debt.

You can find these regional innovation clusters across the country, all across the country, and yet if you took a map of the country and colored in all of the established regional clusters, most of the country, most of America would still be white space. That needs to change, and as an important step toward that end, our Commerce Department Economic Development Administration is also funding a major cluster, a mapping initiative which will help chart the entire country by way of clusters by economic regions. And when completed, this map will help policymakers and practitioners across America's regions identify their strengths and their assets and more effectively tap into the regional innovation clusters that are driving 21st century economic growth.

This is a key component of our Economic Development Administration's jobs and innovation partnership. A long-term plan to help build ecosystems where the private sector can flourish and create the connective tissue that will bind together vibrant regional economic ecosystems. It includes developing an inner-city cluster strategy to make sure that this model includes everybody no matter where they live. And the goal is to help elevate regional innovation cluster development to its proper place in the economic universe as a key driver of future jobs and growth.

Today, we're also pleased to announce that the Institute for Strategy and Competitiveness at the Harvard Business School has been selected as the recipient of our Economic Development Administration's mapping regional innovation clusters grant. (Applause)

Anybody here from Harvard School of Business? All right, there we go. All right, all right. We got the last fellow of our award winners to make their acceptance speeches, just don't thank your moms.

But let me conclude with this: The administration wants to help build a future where, in President Obama's words, "Sustained economic growth creates good jobs and rising incomes. A future where prosperity is fueled not by excessive debt, reckless speculation, and fleeting profit but is instead built by skilled productive workers, by sound investments that will spread opportunity at home and allow this nation to lead the world in technologies, innovations, and discoveries that will shape the 21st century."

It's a future that will take time to realize. It's a future that will take hard work and innovative thinking, but it's a future that I look forward to working on with all of you.

Thank you very much, and have a great conference today. Thank you. (Applause)

MR. KATZ: Let me add my congratulations to the winners

today, and what we're going to do now is move to the first panel and really hear from some of the job creators who are imbedded in the kind of clusters that the Secretary was talking about. To moderate this panel we have Bill Bates, who's the Vice President for Government Affairs at the Council on Competitiveness. He is obviously responsible in that job for the outreach to Congress, the administration, the governors.

I was looking at his bio, and I realized that he is also a fiction writer, so we're asking Bill to come into the nonfiction world this morning and moderate the panel of people who are getting the cluster work done at the company level.

Thank you. (Applause)

MR. BATES: Okay, everybody hear me? Nobody can hear me? How about now? There we go. Good morning. I bet it sounds like we have a reasonably caffeinated crowd out there today.

On behalf of the Council on Competitiveness, I want to thank our partners from Brookings, the Center for American Progress, and NADO for co-hosting this event, and for a very exciting opportunity today to have a very valuable conversation about regional innovation clusters.

The Council has been engaged in identifying and advocating for the power of regional clusters as engines of economic growth for a number of years. For our work in the late '90s with Michael Forderns, who

have embarked important partnerships we had with the EDA, with the Department of Labor which long promoted the power of the region to drive national competitiveness.

I am pleased to share with everybody today our most recent report. My copy looks like this, yours looks like a little thumb drive, but it's what's inside that matters. And what is inside is a discussion of the importance of leaders and leadership within a region, and how the right people can break down arbitrary borders and create a high-performing region, so I commend that to you.

Now, I certainly know that I was probably asked to moderate, as I'm often a man of very few words and, in fact, when I asked how much time we had for introductions, I was told to think, like, two. But I've probably already used up most of my syllables, and we have about an hour to talk about regional innovation clusters and, most importantly, job creation.

So let me get right to the job of introducing our panel. You have their full bios, I believe, and I highly commend you reading them. They're extremely well written, but these are entrepreneurs, these are innovators, these are risk-takers, they're job-creators. And that's really the key message we're trying to get across this morning, is what are the tangible benefits of clusters of thinking and acting regionally? So, top job

creators, regional innovators, the panel starts now.

Let me introduce just to my left here is Al Green -- Albert Green, the CEO of Kent Displays, based in Kent, Ohio. Kent Displays makes some very unique liquid crystal displays, and I think you're going to get a chance to take a look at one in just a moment. But founded in 1993, Kent Displays employs over 100 people, including at least 40 new employees in just the past year.

Next to Albert is Allison Hooper. She is the cofounder of Vermont Udder and Cheese Creamery based in Websterville, Vermont. Founded in 1984, Allison's company which produced specialty cheeses and butter, employs 40 people, and also has been hiring during this recession.

Over to Allison's left is Ashu Misrah, senior vice president with Ascent Solar Technologies based in Fullerton, Colorado. Founded in 2005, Ascent is a leading manufacturer of flexible solar panels, and I believe he also has some show and tell for us. Ascent has grown from 35 employees to over 150 today.

And continuing down the line, please welcome Helen Greiner. She's the co-founder of iRobot, and she is a serial entrepreneur, also the founded of Sci-Fi Works. iRobot, for those that might not know, was founded in 1990 and, quite simply, the company builds robots, not

that it is simple to do, but that isn't really what they do. These are robots that have been in the tombs of Egypt and also help clean your floor. iRobot is based in Bedford, Massachusetts, has facilities in four states, five countries, and employs now over 600 people.

So as we start the panel, the key topic of our discussion is job creations. I want to pose that as the first question to our panelists. How did you do it, and how are you doing it during these tough economic times? And as you think about answering that question, please think about it as in the context of how does the region that your company that you work in allowed you to be this growth story?

So let me just start right -- go down the line here.

MR. GREEN: So, I think -- and I'm trying to think a little bit about this question, how best to answer it -- and I think the first thing is -- and there's some comments before about innovation, things of that sort -- we're an innovation-based company. We make flexible LCDs for various products. I actually brought a product along. It's a product called the "Boogie Board," the consumer product very inexpensive, which we quickly developed and sold. And so I think one component is that innovation -- and you have to do something that people want to buy, and it's a pretty simplest way, you've got to innovate and turn that into a produce or set of products or services that people want. That's one thing I would say you

have t do.

The second thing is that, you know, you have to have great people, and so, you know, we went through a fairly aggressive growth period. We had some pretty successive products that we have produced, and when that happens, you know, you have to hire people. You've got to hire a lot of people fast. And once statement I would make about clusters is that it's, you know, you can't fly people in from all over the place, you're going to have to hire from the local economy, which people really want, of course, and so being a part of some echo system of other countries that you can steal from or whatever to grow very quickly it, I think, an important part of this.

The third thing I would say is, you know, it takes a bit of luck. You know, you can get on certain waves at the right time, you know, the Internet social media, viral things that happened. We got lucky in some ways on some things that we did that caught on, and so there was a pretty rapid growth. So that's how I think we were able to add a lot of jobs at this time.

MR. BATES: Correct.

SPEAKER: Yes.

MR. BATES: Allison, you pretty much started from scratch, no?

MS. HOOPER: Absolutely. Well, I think if the answer to the question is creating jobs and surviving the recession, we happen to be in an industry where consumers are very conscious of where their food is being produced, who's making it, and the integrity of what they're eating, and so we can enjoy that trend.

That as far as clusters our story is pretty organic. I was a college student in Paris and needed to earn a job in summer between semesters. I worked on a farm in France making cheese, and it kind of stuck for the next three decades. And I moved to Vermont because it seemed like an obvious place to do that, because there were at the time more cows than people, and that certainly changed.

We started the cluster because my partner and I were the recipients of the SBA, Small Business Persons of the Year Award in 1996, and when you get this award, you're asked to throw yourself a party. And so we decided to have a -- to celebrate our industry, and at the time there were 19 newspapers in Vermont. So we had a festival, paired them up with chefs, and invited 600 people because we thought, we've got Governor Dean, we're going to give him a kid goat, and we're going to have Senator Leahy up there, we've got to get all these people together.

And in our acceptance speech, I said we would make Vermont the Napa Valley of cheese, and people kind of snickered, and I

thought, oh, no. What have I said? So we had to make it come true, and we created a cluster. And we created a Cheese Council, the first of its kind in the U.S., and actually now there are many states who have these small cheese guilds doing the same thing.

But what happened in terms of job creation at the time, there were four of us who got together. We had 12 charter members. We're not over 50 principle cheesemakers in Vermont. And by talking about this and really positioning our industry at the very high end of the market, we have been constantly making an enormous amount of cheese. California, with all their happy cows making an enormous amount of milk, Vermont really had to figure out a way to compete in a very business way.

So people started to come to Vermont to make cheese, and they'd leave a career, they'd sell a business, leave Wall Street, you know, pile up their resources and, you know, move to Vermont, have a farm, and it looks good last night.

And so -- and it's been very, very successful, and I would say when we look at jobs, and we also have to consider other indicators of economic success because while Vermont may not and our industry may not create large numbers of jobs, we -- our cluster converges in tourism, and a larger food community. And people come to Vermont on vacation because they want to see a working landscape. And if we can't find ways

to improve the profitability of farming through added-value production, it's really going to affect our tourism industry which is our key industry. So we you have to look at a lot of different things.

MR. BATES: Great, thank you. That's terrific.

Ashu, I'm told that you're obviously in an industry that's a hot industry these days, literally.

MR. MISRAH: I think you could say that today, but it obviously goes back to the early '90s, and the technology which we have developed. Originally, the application was space and molecular, actually. The company originally goes back to, like, 1992-93, and my uncle came out the market where we had aerospace there, where soldiers in the field were looking for light-weight flexible solar-charging solutions. And he quit his very lucrative job in aerospace and say there is this technology is in the natural labs, why don't I go and commercialize it and take it and solve the problem for the soldiers, with basically a charging solution for the soldiers in the field. And that's how he got started, he started from his living room. He wrote a proposal to Darvo. Darvo was very fortunate to fund him, and that's how he started.

It's a 15-year journey, and what it gives you is this: a product which is going to change the way we look at photovoltaics. This can be your roofing shingles, it could be your awnings, it could be your facade, it

could be on top of cars and buses charging the so-called emerging electric vehicle product hybrid economies.

Today it is powering solar blankets, are giving power to the soldiers in the field in Afghanistan and Iraq where there are not a lot of batteries. They are able to plug in their communication radio and be in touch with the base.

We have a big emphasis at offering solutions in countries like India, China, Middle East, and Africa where there is no power. Not many people know there are 1.5 billion people in this world who do not have access to power. And probably they will never. Maybe I'll say 80 percent of them will never, and the only reason is to set up a grate, and set up a transmission distribution and a power generation. The billions and billions of dollars that you need will never happen, but you take -- this is a 20-watt candle. A 20-watt candle like this, if you give it to a family, let's say, in India, that's enough to power a lantern and maybe a couple of bulbs. And that changes their whole life, how they see the world. So that's one example I'm giving you.

Then we're talking a lot of very unique applications which is today don't even exist. People are coming up to us, we look at all the gadgets which we are carrying around, and they all need recharged. So if you can take a very simple technology and adapt it for the most hi-tech

bases. I mean we are developing a bag -- a simple bag which will charge your laptop, Blackberries, and, you know, whatever you want to charge.

So as you can see that solar does not mean that it has to be just on your roof. It's a source of energy on the go, and that's how we are looking, because we are lightweight and we are flexible. We are able to take those and create the market. As far us market is infinite. That's the way we look at it, actually.

How far we have come? We've developed the technology for almost 10 years, a direct collaboration with the academiologists. In our case, the School of Mines in Colorado, Colorado State University at Boulder. Then we had technology coming out of NRDO, which is the largest DOE lab, and a lot of very smart people which came from the (inaudible) area put this all together.

In 2005, we spun this off. So far we have raised $200 million. Today we have a manufacturing plant just starting commercial production. We have close to 116 employees, a very high-paying job. Our average salary is between 45- to $55,000. It will be close to 200 people by the end of this year, and we already are looking to, into the next phase, which is the heartland. It's on the drawing board, and we are trying to leverage again to these sources within the government and outside the government.

As you can see, then, it's out -- if you have -- if you have built it, it all comes together, and then one day you find out that you are in the hot industry where 15 years ago, it was not -- it was not that hot. But today I feel very fortunate, and I feel very good.

MR. BATES: Fantastic. Helen? Serial entrepreneur, otherwise known as a serial job creator.

MS. GREINER: Thank you. To make a long story short, I founded iRobot, which the business point is out of MIT in 1990. I served as president and later chairman until end of 2008. A long history before, but we put the Roomba, which is a vacuuming robot, on the market in 2002, and to date we've sold five million of them we think because it's a better way to get the sweeping and vacuuming done. And we also build robots for the military, which was a way that we kept going for all those years without, I think, a hit product. But we provide the explosive ordnance disposal robots, so robots that go out and remediate IEDs. We've got over 3,000 in the field, and they've been credited with saving the lives of hundreds of our servicemen by preventing them from going up to roadside bombs, and remediating the roadside bombs.

And so that's -- took it public in 2005, and in 2008 decided I wanted to go serial, and I started a new company called Sci-Fi Works. During that time, our valid-eye robot, we were, you know, there was a lot

going on in Massachusetts in robotics with ground robots, and underwater robots in the universities, and yet we kept reading media articles about how Pittsburgh was the center of robotics. And there is a lot of late robot stuff going on in Pittsburgh, wonderful research and wonderful companies, but, you know, we basically looked at each other in Boston and said, but, you know, we're not really getting the message out about what's going on here, and they're going a much, much better job and still do.

So we formed -- we formed a cluster. So we wanted a little bit of our competitive juices got flowing, but it's become much more than that. It, you know, for example you asked about the job creation. Well, we ran a venture capital forum, got the larger robot companies up there in front of the VCs in order to split investment in the start-ups. And I can tell you there's millions and millions of dollars are going into robot startups in the Boston area which I haven't seen anywhere else in the country. And it's important because we were able to educate, you know. VCs want to know where the return on investment is, where, you know, what's the exit strategy? What are you going to be like when we make complaint to a robot, a complaint to a Bluefin, which was acquired by Battelle, the complaint with Duposkano which was acquired by Kinetic, a large U.K. defense contractor.

And so by seeing these success stories, we can get the next

generation funded in the local region.

MR. BATES: Terrific, terrific. Now, we are going to go interactive on this panel. So I want you to be thinking of questions out there in the audience that you may have for any of our panelists. And we'll definitely allow a good amount of time to hear from you so that you can have the benefit of the expertise that is up here on the panel with me.

But let me just toss another topic out. A number of you mentioned the importance of either working with universities or having come out of universities. Maybe you could elaborate a little bit on the role that the universities are playing in helping to spur the growth that's opening. Anyone want to take that first? Go ahead.

MS. GREINER: Employment is a wonderful one, you know, with hundreds of universities in the Massachusetts area. Our robot in Foster-Miller came out of MIT originally, and a lot of the other robot companies. It's a great source for those new employees. They set up -- you know, they really focus on robotics at many of the universities. One WPI out in Wooster, they created the first robotics undergraduate curriculum, and I think this is going on in the local area because the companies are in the local area. So it's a two-way street.

You know, we're hoping push what is taught that capabilities of the students coming out so they can hit the ground running, at the same

time, with greatly benefitted from the educational process. And then with the government contracting that we do and others, there's a really strong way to get the knowledge transfer done by joining on proposals, research proposals.

MR. BATES: Al, Kent State was a --

MR. GREEN: Yeah, we did a lot of stuff with local universities. We're located in Northeast Ohio, so certainly our technology, our base technology, our basically crystal technology comes from Kent State University. So that's sort of birthmark (?) company.

But the other thing is we're constantly -- as in a lot of small companies -- of course, we do, do some federal grants and things of that sort -- we're continuing teaming with local universities. I mean there's not a proposal that doesn't go out that's not a collaboration between us and Akron and Kent State, and others. In fact, before coming here, we were told to turn off our PDAs that I was looking at an effort that we're about to submit which involves, I guess there were, there's six entities at some NSF innovation programs. Five of them are local, and, of course, the University of Akron, Kent State, and so on.

So I think having a local university as a feeder institution -- you see that really strongly, of course, in Silicon Valley and Stanford-Berkeley and San Jose State. but, so in other regions as well and in

Northeast Ohio, we see that very strongly.

MR. BATES: Ashu, is that something that -- or, Allison, excuse me. Either.

MS. HOOPER: The University of Vermont recently in the last five years created an Institute for Artisan Cheese as a result of some of the activity that was going on in Vermont and around the country. It serves cheesemakers all over the country in cheese technology. And it's really fashioned after the National Dairy Schools of France. My general manager attended one of these schools, and her husband, when they moved to the United States had to find something for him to do, so he created this institute at the University of Vermont.

But it's been a great resource for our state and our industry nationwide.

MR. MISRAH: For us, whatever we do, it is state of the art, and it's very difficult to have all of your skill-set or resources inside the company. It's just not possible I think. You know, you're talking about tooling, you're talking about characterization tools, expertise, analytical, so we have -- we have no choice but to tap into the local resources, and in this case we are very fortunate. We are surrounded by two of the largest labs in the nation, one is NREL, another is NIEST, which is run by Department of Commerce. And then on the two sides we have a C.U.

Boulder, and we have Colorado School of Mines.

When you combine the resources of these four entities, and you have a lot of talent, you know, from physics, chemistry, and material science, and semiconductor. And that's what it takes to bring all this expertise and know-how together to innovate, to solve some of the challenges of the problem and at the same time keep the possibility. Remember, we are at a very early state. Our R&D budgets are very, very low, and the universities come out to be the cheapest way to do an R&D in the initial stages where you can support a graduate student and get a lot of work done at one-third of one-fourth of the cost compared to if I'm hiding a full-time employee. You have to get to them special before. So for us, it's a very good stepladder to get to the next level.

MR. BATES: Tell me about the interaction between regions. And there are clusters and in many cases there are clusters next to clusters, and there's a feedback group there. Have you found -- you know, Helen, I know, for example, iRobot has facilities all over the world and the country. Do those interact, and are they -- is that a symbiotic relationship because of the different clusters and expertise they have?

MS. GREINER: The robotic clusters do talk to each other. There's one obviously in Pittsburgh, in Michigan, in Silicon Valley. I went to speak at the founding of two of those, you know, just kind of describe

what we do, and maybe eventually we'll put together some best practices. You know, basically our ideas, if they work for you, it's great. If we want to film your ideas when you come up with them and bring them back to the Boston area, you know, I serve as the president of a national robotics consortium with 200+ member companies and universities. So we, you know, we heard about regional economic initiatives, and they seem to be working in our field. But we, you know, there are others as well as the one in Boston just like those other cheese -- cheese clusters.

MR. BATES: Anyone else thought of that?

SPEAKER: Go ahead.

MR. GREEN: And I think in our case, you know, I'm sort of thinking about other sort of flexible electronics, or in our case specifically, displays. A cluster, it's hard to put my candid on one in the U.S. I would say that certainly we interact with other such groupings or entities, but they primarily are they're international. There's certainly in Europe, in the Netherlands, Taiwan, of course, which has a very rapidly-growing display (inaudible). I think that it really does open your eyes to see IO think two things: One is the power of these kind of clusters. I'm thinking of in Taiwan in particular. And the second thing is the amount of government support that are behind these kind of initiatives. I mean -- and the reason why I like it is because they make no bones about the purpose of these

clusters. It's not about, you know, weapons for the war fight or anything like that; it's about jobs, job creation and innovation, and stuff like that. And it really does open your eyes when you go around the world and interact with other kind of entities that are doing similar things with those.

MR. BATES: Allison for --

MS. HOOPER: I would say that we interact with other clusters around the country, regions that have organized their cheese industries on. And the reason is that we need to work as a national industry to develop a message we have a consumer product. And it's really about getting our customers to understand what we do. And we are so small in Vermont, yet we sell our products coast to coast.

So to the extent that people in San Francisco love to buy local cheese from Marin County -- it helps them to take an interest in regional products from Vermont. So we get together once a year at a national conference, and we also -- it helps to improve our relationship with the media. I think the media writes about our products if they know that there's a lot of people around the country doing the same thing. So --

MR. BATES: Do you want to touch on that,

or --

MR. MISRAH: Fine, pretty quick. I think from us, we are at a very early stage in our -- I mean the whole what's more we call the new

energy economy, and it's in a very, very early stage.

We are seeing some pockets on the -- especially in Silicon Valley and some of the East Coast, and we as an industry in the group have started the interaction.

But we are also seeing people attracted to us. So, like, just to give an example, recently in our scheme of things in our counseling business, we need about what we call inverters, which is very -- we produce DC which is a better current, and it has to be converted into an alternated current to fit into the grid. And the largest manufacturer decided to -- from Germany -- decided to locate in Colorado right in Denver. And the sole purpose is because what's going around. They want to be part of that ecosystems. So, to me, that's slightly just looking at where migration is happening into our cluster.

MR. BATES: Well, so far it's been a very positive discussion. Let me ask the negative. What are the hindrances that you've encountered as far as job creation, either difficulty in finding talent, be it government regulations concerns, local challenges you have that if you look at and say if only this wasn't here, or this wasn't in the way, we could expand faster, I could hire more quickly.

MR. GREEN: Yeah, so a good question. I think one thing I would say is that we're part of what I would call really an emergent cluster.

I mean in Northeast Ohio, you know, there's this -- it's really about flexible electronics. There's a lot of companies that are at least moving in that direction, and I wouldn't call it a problem, per se, but it's the fact of the matter is that there are a few companies like mine, and, you know, the CEOs of those companies were about making our companies profitable, and, you know, the day-to-day, you know, blocking and tackling I it, to try to make a business.

And I think one of the things that you really need in a situation like that is -- and the companies are doing their own thing, and it's nice to have sort of other folks that are actually focused on bringing those people together. I mean in Northeast Ohio again, I think that that's been done very well. We have Nordtech -- I see some of my colleagues here, Byron Clayton and certainly John West. We have another initiative at Flex Matters, and what that has done is it kind of -- it's sort of a gathering space for the companies to kind of meet and so on and so forth. So it takes the burden off of us that are doing the blocking and tackling, and you have some other entities that are kind of helping to organize those sort of things.

It's in a sense spinning it in a positive way, that that's a barrier that can be overcome by sort of other organizations in the region that might help you do some of those things -- particularly in the early

stages of cluster formations.

MR. BATES: Who else? Who else has a challenge?

MR. MISRAH: Let me. For us I think the biggest challenges is when you are innovating something and especially when you're doing, or you're playing with the fundamentals of scientific question with a lot of capital. And somebody to believe in what you're doing. So I think, for us I think we just get rich with all this capital. And we are very fortunate. Again we are surrounded with a lot of companies. We -- I will talk with the positive side more than the negative because I think again, so far we have come this far, so I'm always going to be benefit of doubt that – there's some positive force which has brought us forward enough, and I mean government grants out the local infrastructured house.

Now, what we are trying to do is, we just, in Colorado last year we formed a trade organization called CCTIA, Colorado Clean Tech Industrial Association. And we are creating that as our focal group as a convenient, try to bring everybody under one umbrella for interaction.

And we found out as we started as, you know, we thought there were 20, 30, or 40 companies, but we had membership of more than 300 companies from big all the way to small. And certainly we are finding out a lot of things which we are do. We can help each other.

And then you work on the some part we call supply side, and

we work on the demand side. But a lot of this technology also, we need to figure out how to create demand. The demand won't exist today. The demand has to be created, and for that then you need to work with the local utilities, the local customers, and that's how we see the interaction from overall the ecosystem has to work. And the way it works is that we have to bring everybody together and show them what exists and how we can leverage each other.

So to me, I think I will not go into negative because I'm a very optimistic person, you know. We have in 15 years, we have created four companies, and we have created some of the most high-pay companies. So I actually have a lot of faith, and I'm in an environment that I feel very good that -- and everybody's noticing what you are doing. So -- so I just want to talk about positives.

MR. BATES: Yeah. That might have something to do with the success.

MS. HOOPER: Yeah.

MS. GREINER: And you'll find it difficult --

MR. BATES: Helen, you've been smiling since I raised the issue, and I get the sense --

MS. GREINER: And you'll find it difficult to get a negative from entrepreneurs. We are just positive by nature. But, you know, we're

in the Boston area, right, and when people think of Boston they might think IT, or they might think biotech, and then, you know, robot. Sometimes people ignore the emerging, the next generation of industries, but, you know, Silicon Valley was just HP at one point in time. You know, Seattle, Microsoft, right? And so, you know, to get that first anchor company in I think is really important. And I think that iRobot has played that role for robotics in the Boston area.

So what we did about it was we, you know, we started looking at the robot companies inviting them into the cluster, discovered there were over 60 of them. And then we did an anonymous survey of the membership and found out that it was almost a billion-dollar business that nobody knew how big it was in Boston. And then when we go and talk to our local representatives all of a sudden, you know, robots, now they're something. And, you know, so by working together we could really increase awareness that, you know, even though robotics may be judged as further out than what exists today, and the jobs that are in these other industries, you know, let's also support the emerging.

MR. GREEN: Certainly innovation-based companies, I mean it's just it takes the one, or the two. or the three like yourself, you know, hyper-aggressive entrepreneurs that just are not going to quit. I mean you really put out seed.

MS. GREINER: I think that's really the key, you know. When you look at it, money's important but a commodity. You know, there's the infrastructure you need, but it really comes down to, you know, the services that have a commodity, but it's the entrepreneur, and what the clusters do is encourage people to be entrepreneurs in that space in that area, and also when you've done it at a company for awhile, you might decide, hey, I could -- I could run that and go out and be the next entrepreneur. And I think that's somewhat of what clusters are all about. It's about meeting the entrepreneurs to make it happen.

MS. HOOPER: I'm sitting here trying to think, now what are the negatives? Well, actually, I think for Vermont, we are the most innovative cluster in the Artisan Cheese world. We win all the awards, we get the most media coverage, and the challenge for us in a very small state with a shrinking agricultural supply, how to stay ahead, how to stay in front. And so we are accustomed to doing a lot with very few resources. It's just how we have grown up.

And when you say, what do you need? Wouldn't it be -- we always say, Well, gee, wouldn't it be great to have some money to do some, to really do something to really improve what we've started.

So, but I think that within our state and certainly outside states say, Oh, Vermont is a great place, you guys are doing wonderful

things. And we say, Well, really, what are we doing? And they say, I don't know, but it's just great.

And you think, well, that's fine, but, you know, we struggle to, you know, keep our dairy farms alive, so, you know.

MR. BATES: I've got one more question, and then I think we'll open it up to the audience, but I also want to give the panelists an opportunity if questions have come up in our discussion that you wanted to ask each other, to have a chance to do that as well. But we all heard Secretary Locke speak about, obviously, the concern that the administration, and I think this is true in state governments as well, that we're not creating jobs fast enough, there's unemployment still remains very high, GDP growth is not where we'd like it to be.

So imagine they come to you and they say, what should we be doing that we're not doing? What would your answer be?

MR. MISRAH: I think in my business, actually though, I think the administration is at least making a lot of noise. At least they're talking about it. By the time it starts and by the time it probably gets delivered I think it's a two, three, or maybe five-year cycle.

I tell people in that a lot of people think that we're trying to change the environment, and I say no. I think the way I look at it, I'm producing energy. And energy is like food. People cannot live without

food, same way people cannot live with energy. There are 6-1/2-, 7 billion people in this world. As they move up in their affluency, they need more energy, and you're not going to be able to go put nuclear or four to five of gas pipe, gas pipe power lines overnight. It just will not happen.

And the best example, I can give you is look at the cellular, the mobile industry. The only reason that it has grown in the developing world this fast, today, actually, the fastest growth is coming from outside the Deb Report. India is adding 20 million cell phone subscribers every month. That translates to about 380 in either median, and that we're getting 380 in either media. And look at what it took India to do, you know, in the -- in the -- in the, India the wireless maybe 26 years to get to this level.

And only the Eastern India is doing it because they don't have to go and lay down the huge infrastructure of copper wires to get the phone line to every, each and every household. So it's put one-cell power, and that feeds, let's say, a 20-mile radius. And guess what? There goes your 10-, 15-, 20-, or 100,000 people to have suddenly running around to cell phones.

And IO think that's what you'll require. And there is appetite, there is hunger there for people. So the same thing applies to the energy side of it. The wind, or solar, or some of the other renewals can do, it's

not -- forget about the environment. To me, I think I'm an interpreter, I go after -- if there's a problem, solve the problem, make money. And to me I see the problem. There's an opportunity there for people for power. I set up my solar panel, I'm producing power. And people are willing to pay,

The cost to put a system maybe a few thousand dollars to feed a village of, let's say, 200 people, if they're going to rely on government to bring them a grant, they might even take up -- they may take another 100 years. And we are not going have it happen. But just look at such a small investment, and that's possible with this technology. It's not possible by setting up pool of gas pipelines. It's only (inaudible). I think that's how we think.

So, to me, innovation and opportunity. Combine the two, there's a business to beat then.

MR. BATES: A couple people mentioned access to credits. Money would always be nice.

MR. GREEN: Oh, yes, man.

MR. BATES: Is this a government role?

MR. GREEN: You know, people talk about, you know, is there any way to get the banks to lend money. I mean it's just, it's amazing. I mean just a specific -- you got for some specific concrete examples, so basically in a week we put this product out on the market,

and the demand just went crazy. And that's great for us, you know, great problem to have.

And so we go and, you know, we have firm orders for many, many, many units, you know. But to fulfill those orders, you know, there's a buy chain. You've got to buy material, you got to buy X, Y, and Z, and, you know, at the end you know that if you produce it, you know, you're going to sell. You got a customer that's giving you a letter of credit for that they're going to buy.

You go to a bank and say, look, I need $100,000 for the $300,000 of working capital, we call it -- of working capital to fill, to fulfill these orders, this whole line list of orders.

The bank says, I'll lend you $50,000 if you have $50,000 in the bank, and pay the interest. I mean, so if there's any way to get the banks -- I mean it's, it's really, you know, in the nuts and bolts of blocking and tackling in running a business, it's really painful, because you, you know, the banks basically are unwilling to lend any, any money. And the hoops that we almost got to the place where we had to say, you know, sorry, customer, you know, we'd love to give it to you, but we just can't afford to make it. It just doesn't make any sense.

So if there's any way to get the bank to lend money, that's ours, our horrors.

MS. GREINER: And we always say the banks will lend you money as long as you don't need it, right?

MS. HOOPER: I think in our, in our cluster we are dealing with production agriculture and forest products, and they are very marginally profitable enterprises that take long-term investment. So one thing that I wanted to share, a thing that we did in Vermont back in '97 was we created an entity called the Vermont Sustainable Jobs Fund. There was a group of us who were members of Vermont Businesses for Social Responsibility. We wanted to try to foster development of some of our natural resource base industries: agriculture, forest products, and look at green technology.

And so we lobbied the legislature to appropriate, you know, a couple hundred thousand dollars -- it seems like a small amount here, but in Vermont that's a lot of money -- to -- and we promised that we would leverage that state appropriation with foundation funding to invest in some of this activity. And that was really key.

For one thing, the foundations were kind of getting tired of pouring a lot of money into long-term investments, highly risky industries and really not getting the public policy key or commitment to the things that they were doing. So this was a way to get the state to sort of say, yeah, we're with you. We want to go in this direction to develop, to have

this type of economic development policy.

And our promise to the legislature was that we would leverage that money four-to-one. And it's turned out over the years, we leveraged it eleven-to-one, and we've served 150 different projects with $27 million. It just started with this very small amount of money, and it was really the original cluster idea in Vermont because, when we got the money we were worried not to give it to one -- one company and have it fail. And we wanted to make sure that we went back to the legislature the next year and have as much reach to all of these towns in Vermont and legislators who wanted to know what it was doing for their constituents.

So we ended up granting money to groups of businesses or on people who got together with an idea. So that was really how we started that clustering of the small businesses in Vermont. And it worked. It worked very, very well, and it was a real success, and it could be duplicated all over.

MS. GREINER: Our cluster was hosted by a (inaudible) foundation, which we were taking on developing and agency, a very small electro-like training that we had. But that helped to, you know, kick-start the effort. Also the Massachusetts Leadership, Technology Leadership Council, you know, (inaudible) fire attach and IT, but, you know, it took some time to work on the not just robotics but other emerging technology

initiatives, I think.

So things like that are what the government can do. What they probably shouldn't do is try and create clusters. You know, the robotics cluster in Massachusetts existed. I was just self-awareness happening that, you know, meetings, get together and think about what we could so as an industry group, as a group the following -- a less impactful way to use federal funds to try and create -- to create clusters. That would be into huge -- a huge job.

And then, you know, we, in our industry, you know, we believe in knowing the technology that's going to help the -- reduce health care costs, helping better surgical outcome, reducing them little traffic fatalities, 1,000 on the road per year, help the elderly stay in their homes longer. There's just so much positive impact that when you believe it's a national competitive issue, and by joining together (inaudible) we're going to prevent it. And like other industries that's going into a United States firm, ending up overseas.

MR. BATES: Ashu, do you have something else?

MR. MISRAH: No.

MR. BATES: Great. Well, why don't we turn to the audience, and I'm sure many of you are serial conference goers, so this will be a pattern that you're aware of. We'd like, if you have a question,

there are people with microphones walking around. Just raise your hand and they will find you. When you ask, if you would please both stand up and let us know who you are and what organization you're representing.

We can start right over there.

MR. CHARLETON: Thank you. My name's Randall Charleton. I'm from Detroit where in the last century we developed a regional cluster, as you'll be aware. We're now busy developing alternative clusters, including the life sciences, biobanking, for example, medical devices, alternative energy.

And many of these companies, of course, are very small, and they're in the early stages. And I would like to hear from the panel -- who, by the way, had all very inspiring stories -- how they think clusters can help drive exports for small companies. Because I think one of the issues Merrick faces is while big companies are very good at exporting, many small companies are very bad. They think exporting is going to Toledo, and so on.

So have your Cheese Council, for example, has that helped drive exports, robots, and so on? Thank you.

MR. BATES: Start off?

MS. HOOPER: Well, I think that if you were to look at pooling distribution and message domestically, we do the same overseas.

We've had the good fortune of being invited to cheese festivals overseas only because we have created a name for our region of Vermont Cheese.

So it's, you know, in Europe if they want the best from the U.S., they immediately think of Vermont. So I think it definitely helps to do that. It also helps with logistics, because the logistics, of course, of shipping overseas and getting all of the regulatory barriers kind of lined up, it really helps to have a group of businesses that have shown an interest in doing that, to facilitate that. Yeah.

SPEAKER: Do you also let the public --

MR. MISRAH: For us, we are just fortunate and we have a (inaudible) industry which is 90 percent exists outside of India. So my need for the objects so we have no choice.

MS. GREINER: I think the learning can on a robot because it was a ground-breaker in the industry, really came from looking at what other consumer electronic companies do, because we had no one to model after. But now, the robot companies coming up do have a model that they can -- that they can point to.

MR. BATES: Al, (inaudible) some. Get clusters as export drivers?

MR. GREEN: Yeah, I think if you're doing, if it's anything in consumer electronics, you're going to deal with international, whether it be

suppliers or customers sort of by definition. I think certainly for an emerging cluster, I can't see how the cluster helps sort of in a concrete way. I think it's more just as advice that you receive from other companies and if you're facing the same issues and -- in Hong Kong or Taiwan, or whatever.

MR. BATES: And I think we had a question over here. Microphone headed in that direction? Two questions.

MS. REYNOLDS: My name is Liz Reynolds. I'm with MIT's Industrial Performance Center, and I think it's come across for every speaker this question of the role of government. And we clearly have a healthy tension in this country about how engaged both at the federal and state level the government should be. We don't want them to, you know, pick winners at the same time they're investing through DARPA grants. We're using the national labs, we're talking about state as investor, and I'm curious if you could speak to this question of the role of government, whether you feel both at the federal and state level that we are approaching this in a healthy manner, whether we actually should be doing more, as we see in European and Asian countries that are highly, highly aggressive in the way that the Fed -- in the way that the government gets engaged.

I'm curious about your thoughts on that.

MR. BATES: Go ahead, Al.

MR. GREEN: So -- I have a bunch of thoughts, but one, I would say is I was referred to the federal government as sort of the best VC in the world. I mean it's an entity that gives you money. Some of this is cost-shared, some of it's nor, and doesn't demand equity in return. So it's a great investor, a great, great VC. So that's one thought.

I think one of the things that -- I'll come back to a point I made, I made earlier -- I mean when you do -- there's sort of this difference dichotomy between, say, a private investor and, say, the government. I mean a private investor emphasizes a reduction in risk. I mean, you know, if something is less risky and you could make money doing it, by all means do it, you know. And that, you know, is going to lead to, hopefully, some sort of wealth creation.

You know, the government tends to -- I just want to emphasize -- risk. And it's almost for the sake of risk. And the state is typically, well, if it were less risky then someone else would invest. But that's actually not -- it's not always the case.

What I found to be very interesting -- and I'll speak, I'm sort of new to Ohio, but I'll speak to in Ohio's case -- I think the state has stepped in, in I think a very healthy way and has made investments, typically cost-share through Ohio Third Frontier and other kind of

programs like that, that I think are more of a balanced risk where certainly they're not going to lend you money for, you know, working capital, understand that.

But they make no bones about the fact that, you know, if it's -- it's is by job creation, so, so even if it's not the heaviest, the highest-risk thing, you know, the 10-year payoff, they're still willing to invest. And I think from my perspective any, to the extent that certainly the government can recognize the fact that funding low-risk or medium-risk things that are going to create jobs and really invigorate the economy, just go ahead and do it, and don't -- don't worry about it. So that --

MR. BATES: Other thoughts on the appropriate role of government? Too much? Too little?

MR. MISRAH: I think in our state, directly, the government has I would say a major role to play. Because, remember, we had -- we are in a sector which a core foundation of the society energy. I think people forget that, I mean just look at 100 years ago, and even today government is still paying and subsidizing the fundamental core energy industrial fossil fuel, even to today.

Industry like this cannot grow over night without government. And not just capital, policies. I mean, policy is a key thing, and who's going to define that. Individuals cannot. It has to be the government. It

has all the way from federal to the state, county, as well as the city level. So that's one role of the government we see it.

Demand. I mean government is one of the biggest spenders, and it doesn't matter good time or bad times, I mean that's the largest checks. Who writes the largest checks? The government. So if government creates some demand, that starts the market. That's a very important role and the plurality of stores have capital.

As outside it could be a cheap VC in the beginning to SBIR grants all the way today, which this administration is leveraging the co-called the Loan Carriage Program. A lot of people are thinking is it's a handout. It's not a handout. Actually, it's just the government is guaranteeing the loan. The government is not giving any money away. What's happening is the collapse of capital market.

Well, I'll give you an example. My next plan is a $400 million investment. That you cannot do through equity; it has to be through debt. No bank is today willing to give a start-up company with an unproven technology $400 million. It's just not, not possible. But it's a chicken and egg. Compare that to my competition. They, the -- China just wrote a $26 billion line of credit to the top five solar companies just this year. That pretty much takes care of their export for the next two years. Whatever they produce is going to be -- you know. And that's what the battle we are

fighting, so government for us has a very important role to play, and I think to some extent this administration is doing -- the implementation phase may be still a couple of years out because it takes lot of time for the stuff to trickle in, actually.

So, to me, I'm a big, very big supporter. The government as a very important role, especially in my sector.

MR. BATES: Allison or Helen?

MS. GREINER: I worked a lot on the cutting edge. We (inaudible) its side winning, you know, what they call high-risk/high-reward grants, and we've actually, you know, commercialized a lot of that acting on, you got it out to the war fight, you got it into people's hands. But I think what the government shouldn't do is make that regional. I think a nationally competitive program is the best way. We have to compete in a global economy, and, you know, if the region's not winning, you know, you need to fix it, not, you know, just put in, put in money.

So I'm a big advocate of the real open competitive bids because that's going to get the strongest companies, and the strongest companies are the ones that are going to win in the marketplace, the global marketplace, and create the most jobs.

MR. BATES: Great. Right here at the same table I think we had another question. And then we'll -- did I see a hand over to the right?

Okay. Back there, okay.

MR. KITTLES: Percy Kittles from Harvard Business School, so Harvard Business School and MIT can sit together and (inaudible).

I wanted to get back, well, actually, to a topic that you mentioned at the beginning, and that's leadership. I mean you all have tremendously inspiring stories of leadership in your own companies. I wanted you to first comment a little bit on how leadership in a cluster is different from leadership in your own companies. What kind of are the opportunities, challenges working not only with your rivals but also with government and research communities?

And then since we're talking about the role of government, how should government think about that? Should kind of the quality of leadership in clusters be one of the key determinants as you try to figure out, you know, should we work with these guys or those group of people? How important is leadership in your opinion?

MR. BATES: Who's ready to jump in on that?

MS. HOOPER: I'll jump in. It's pretty important, and I think you really have to have leadership, or you're really throwing good money away. It's taken -- in our industry, it's taken some time to develop leadership, and develop the trust of colleagues, who sort of think in the early days, well, this person is really moving ahead. What's going to

happen to me in this? So you have to spend a lot of time making sure that the larger companies have an interest and the smaller companies have an interest and find the things that are more commonality rather than the differences and really emphasize those things, really target small successes early on to get the buy-in from your colleagues.

I think that what we try to emphasize is that, you know, any entrepreneur or any good business owner is going wants to build value in their business whether, you know, they're building a brand, and lower their cost, and leverage all of the resources they have. And a way to do that is to leverage the resources of others in your industry.

And so I think that you're not going to bring everybody along from the beginning, and if you can get a small group and, you know, show you can only demonstrate success, and then other people come along and they follow it. And I think that it's just -- it's -- I would definitely emphasize, as you said, Helen, you know, competitive bidding. It really works.

MR. BATES: Other comments on the importance of leadership?

MS. GREINER: I think you just have to really make sure you know which hat you're wearing on that day because no one's going to know better if the -- what you're proposing in a cluster is, you know,

promoting predominantly your business interest, not the good of the entire community because these folks are in the industry and they know what's going on. So you really just have to make sure you always are aware of what hat you're wearing.

Because we're entrepreneurs, right? We go tooth and nail for our companies. That's what entrepreneurs do. But when we're wearing a industry plus the hat, we have to kind of put that aside and say what is the greater good for this industry?

MR. BATES: Let's go on the other side of the room, and we'll come back. If there was a question in the back?

MS. HUMISTON: Yeah, hi, there. I'm Glenda Humiston, and I'm currently serving as USDA State Director for Rural Development in California. And in that role, we're doing a lot of what you were just discussing that the rural government can play: We're providing a lot of funding, also leadership as far as convening and providing facilities, et cetera.

But one of the challenges that I think we're facing -- we work with a wide array of clusters all over the state in rural areas, and of rural/urban mine areas, too. Is this source of capital -- we're working in partnership with venture capitalists, with the microfinance people, with local banks, with everybody who we could possibly work with as well as

our own loan guarantees, which are extensive. But it's not enough. And one of the things we're trying to work on and I think gathering up some rather creative people, is we are finding in a lot of our rural regions a desire to create their own sort of regional cluster mutual fund so that local people can invest in their local businesses. They put their IRAs there, in other words.

And SEC is not being particularly helpful with this, not the old certified investor type of problem. But I'm curious to know if any of you have worked with folks that might be trying to do that, or anybody else for that matter because, frankly, for all rural areas, I think it's a key-to-key answer to coming up with the kind of ongoing investment, as well as just public support for these emerging businesses and entrepreneurs.

MR. BATES: Has anyone had experience in this area, or thoughts on it?

MS. GREINER: Not exactly. The closest we have is -- and I think it's highly beneficial for the entrepreneurs who have been successful in the area to be trained. The next generations (inaudible) -- you may not know what kinds terms to look for, you know, how good was your pitch, and also there is some industry spenders like, you know, who might not get the valuations in outfield as the IT industry. So, you know, being able to talk to people who have been there, done that, and talk to investors and

make the introductions can be highly beneficial as a cluster.

MR. BATES: Allison?

MS. HOOPER: I would just say quickly that it's certainly prevalent in Vermont. We have the Vermont Community Fund. A lot of -- I say a lot, high net-worth individuals in Vermont is very interested in investing locally, and there's nobody more vested in the success of our local economy than the people who actually live there who have chosen that as their home.

So it's a great opportunity if it can be marketed and communicated effectively.

MR. BATES: Great.

MS. KANE: I am Debra Kane, representing a company called Food Hub, which is based in Portland, Oregon. Pacific Northwest. Great pinot noir. Great cheese. Non-genetically-engineered salmon.

But my question, I'll ask you, I'll finish in my time. You talked a little bit about the great consumer demand for understanding where our foods comes from, et cetera, et cetera, and we, of course, enjoy the same great consumer demands in the Northwest. We have a very active and robust regional food economy in the Pacific Northwest, ending at last year in 2009 agricultural -- net agricultural income fell by 41 percent. And you mentioned in your remarks that people ask you all the time, oh, now that

you're doing such a great job, what are you doing right? And you say, well, if we were doing something right, we wouldn't be losing farms. You know, if we were doing it so well, we wouldn't be losing farms in the state of Vermont.

So my question is what kind of climate, what scenario would have to exist in order for you to have said, "We're growing farms in Vermont; young people are coming into farming; agricultural income is on the rise?"

MS. HOOPER: Well, we're no different from Oregon. I just came from Eugene yesterday, and wouldn't we love to have all that wine -- all those grapes growing in Vermont that you have there.

So I think that it's these industries evolve, and it's really about education. I look at where we were 25 years ago where Americans didn't eat goat cheese, and how to make a small dairy profitable, it's really about how do we, as states and clusters, educate the consumer to make them really understand the value of what they're eating. And for the most part Americans don't, as a rule, compared to other, you know, to other parts of the world.

So I think that to be able to invest in technology, you don't have to compromise the integrity of our food supply if we invest in the entrepreneurs, have them do things in a better way, have them look at

scale, have them grow from a cottage industry artisan to a business and really take their talent and make it available in a larger marketplace. There's a huge opportunity to do that. And I think it would bring more dollars back to the farm.

MR. BATES: We are actually getting very close to the end of our time, so I do want to give our panelists just one last chance on this topic. The topic of our panel was Job Creation in Role Clusters. If there was one thing you wanted folks to walk away from today as to what's key about clusters and about job creation that would be useful for them to think about in their businesses, whether they're states working on full-blown economic development; whether they're entrepreneurs looking for, you know, to start in a cluster; or just people that think clusters are the right way to go and what should we be doing first? What would help?

Helen, let me go backward.

MS. GREINER: Camera and lights. I think it really is about the entrepreneur, and without the entrepreneur it's, you know, you're not going to get through those roadblocks that come along the way. And if you focus attention, you know, I would have liked to see you (inaudible) represented here because you need those people that are going to absolutely drive it in the face of all hardships through to a successful outcome, and, you know, iRobot's currently a 20-year overnight success

You know, economic development I think someone from Brookings told me, it doesn't operation on political time frames, so do it for the long haul.

MR. MISRAH: For me, the way I look at it is that we don't look at things we (inaudible). I'm not only going to look at it domestically. I mean I look at it globally. So look at the problem at a global level, try to find a solution, and create an industry which you can sustain it.

One of the challenge, I think I look at coming from a high-tech industry is that what is going to bring the next growth. When you look at those who were electronic, yes, it is growing, but it's growing at a pretty, you know, pretty flat IT telecom. In the last 20 years, it will be -- all the high-techs will be saturated with this expected growth. All of them gets, if he gets in the right (inaudible) job creation. We really have to now look at what is next, and to me energy is going to play a very important role globally, especially India and China, 2.5 billion people are just (inaudible).

As they move up, India needs and there are a few that have played a very important role, and one that's going to improve. And I think we need to look at what solutions we can provide beyond a occupational solution. And that's how I feel. I think cleaning the environment and this and that to mean those are good things, but for me the (inaudible) is that that appetite needs to be fed. And today it can be fed. There are a lot of innovative technologies out there, and (02:27-inaudible), and drawn to that

level and to get that market.

The market is very punctilious and (inaudible). It's not about 200 million. Then there I think (inaudible).

MR. BATES: Thanks. Allison?

MS. HOOPER: I think that clusters exist, similar clusters across many regions and then within a region they converge on top of one another. So you have to be able to look at job creation, not within just one cluster, but they all relate to each other, and in this example in Vermont, we're very strong in the arts, food, cheese, and they all
-- we all have the same customers. So we talk to one another, and to the extent that we can articulate a message that's very clear and concise, it's really helps to succeed, so --

And I would also say if anybody is interested n looking at some of the things that we do in the Vermont cheese industry, I brought some stuff.

MR. BATES: Fantastic.

MS. HOOPER: Not cheese. They wouldn't let me bring that in the hotel, I'm sorry, but.

MR. BATES: Al?

MR. GREEN: I think in hearing all the -- in hearing the comments, I think from our perspective, a cluster is about sort of proximity

of resources, and sharing those resources amongst the various companies. I mean everything from employees to suppliers. And I think the one thing that I appreciate the most is the -- is the camaraderie amongst the companies where you do a similar thing or on a similar problem, even repeat sometime, hopefully not all the time. But certainly the shared experiences in my case the cluster idea is attractive for us.

MR. BATES: Fantastic. Well, we have run out of time that you can join me in thanking our panelists for a great discussion.

(Applause)

And I believe we have 15 minutes allotted for a 10-minute break. So I believe you can get a cup of coffee, but we need to be back here in your seats at 10:45, please.

(Recess)

SPEAKER: I wanted to thank Bill and the prior panel for what was a wonderful conversation. I walked away from that panel wanting to buy a product from each of those companies. The American consumer juices are still alive. I'll buy some cheese from Whole Foods this weekend.

We're going to show now quickly from the company level to the intermediary and regional levels, though I thought frankly that the first

panel did a pretty good job of inventing what the firms do in the context of their regional clusters. When Liz ticked off so many of the different elements I think it really made the case from the company's perspective. We're going to try to have a group of regional actors and intermediaries talk about this (inaudible) role or the connective tissue role that is played by some very innovative and entrepreneurial intermediaries.

To moderate this we have Matt Chase and he's the Executive Director of the National Association of Development Organizations who is another partner in crime for this conference, but more importantly for the broader thinking and policy development within clusters but also within regional economic development. Matt has a long history in this area as many folks in this room know, but I just wanted to thank him personally for being such a helpful partner.

MR. CHASE: Good morning. As Bruce said my name is Bruce Chase and we're here to talk about technology and innovation. My name is Matt Chase and I serve as the Executive Director of the National Association of Development Organizations which may be a new group to many of you. We represent 520 local government based regional planning and development -- so we are proud to be a sponsor of today's event. We have four outstanding experts who work in the vineyards every day and promote regional innovation ecosystems and advance the

development of their emerging and existing economic clusters. As we heard this morning, we're honored to have two of the Department of Commerce's I-6 Challenge grantees that were just announced this morning so that automatically we have credibility with this panel.

According to a June 2010 article by McKenzie Goldwins the United States has relied heavily on labor market growth for the lion's share of our GDP growth. For example, in the 1970s, 80 cents out of every dollar of our new GDP growth came from labor force gains within the nation only accounting for about 20 cents of every new dollar. But due to new and various local market realities we know that things are going to change and McKenzie is now projecting that these ratios will really be converted during the coming decades. Local labor force gains will contribute less than 30 cents of each additional dollar of economic growth with productivity and innovation gains accounting for over 70 percent. These realities require new policies, they require new approaches and new strategies.

Andy -- the former Intel chief recently released a highly regarded op-ed in "Bloomberg Business News" in July that also drives home this -- on regional innovation and cluster development and talks about the importance of not breaking the -- experience for domestically produced innovation and technology especially the evolution of

technology. In learning from Intel's past he cautions about abandoning what is called today's commodity manufacturing which is often a stepping stone to tomorrow's industries meaning once you lose the edge of some of these corporations, communities and regions, once they lose that edge, it's very expensive and hard to regain traction whether it's renewable energy, advanced battery technology, bioscience or -- consumer electronics.

This morning's panel features four organizations that are focused on developing regional innovation cluster strategies, developing networks within their regions and capacity to ensure their states, regions and local governments stay ahead of the curve or in some cases rebound from severe economic hardships and transitioning -- adversity. Most importantly and really what we're focusing on is how you leverage your local assets -- competitive advantage -- continue to evolve your economies. As was highlighted in the recent administration's -- regional innovation funding competitions both at EDA, SBA, the Department of Labor and the Department of Energy, there are some core elements for effective regional innovation ecosystems and more and more we're hearing about public-private nonprofit and even philanthropic collaboration, we're hearing a lot about talent development attraction and retention, access to capital investment at all phases of development,

commercialization of research on ideas in the marketplace and also what we hear from the White House and others about the importance of quality of place and the ability to seamlessly connect global markets and national markets.

Obviously we know that the private sector is the ultimate driver of job creation and retention in the United States but we're learning more and more every day about the important role that regional innovation intermediaries play and that's what our four distinguished guests are going to talk about today. Often times we hear in political circles that these regional intermediaries are labeled as just conveners or resource providers or technical assistance providers. We would prefer to call them the -- we would prefer to call them the accelerators of progress and even a fancy buzzword of information and knowledge brokers, that they're essentially bringing people together who wouldn't otherwise collaborate so that we're excited to learn more about what they're going to be talking about.

As Bill mentioned with the earlier panel, their bios are in the program. They have lengthy bios with incredible stature and standing. On the far left we have Betsy Biemann who is the President of the Maine Technology Institute which is an organization focused on generating high-quality jobs across the State of Maine. It's an industry-led corporation that

offers early stage capital and commercialization assistance in the form of competitive grants and loans and equity investment.

Then we have Dr. Louis Prozena who is the President of the University of Akron. I think the Center for American Progress will be releasing a report today that outlines some of the work that the University of Akron has done and Dr. Prozena has been a leading driver of innovation and change not only in Ohio but globally and across the country.

Then we have Richard Lunak who is President and CEO of Innovation Works which is an organization focused on providing investments and resources for high-potential companies in Southwest Pennsylvania. Like the University of Akron, Innovation Works is one of the two I-6 Challenge grantees and this is a group that's part of the statewide network of Ben Franklin Technology Partners and they're also the single largest investor in seed stage companies within their region.

Then our last guest is Wayne Roth who is the CEO of CONNECT which is a 25-year-old nonprofit focused on fostering innovation throughout the San Diego region in California. CONNECT has a strong history of development of the region's wireless and lab science clusters and now they're moving into other facets.

Why don't we start with Betsy and why don't you give us a 2-

minute commercial on what is the role that your organization plays, why are you unique and how do you try and help private-sector companies and entrepreneurs fulfill their dreams in a clusters sense?

MS. BIEMANN: Thank you very much. The Maine Technology Institute was started about 10 years ago when it became really clear that technology innovation was going to be a critically important driver of Maine's economy and all of our economies over the next century. Part of the reason it was pretty urgent at the time was that there was data that showed that Maine companies invested less than their peers in other states in research and development so that a real driver was around the funding of innovation and that's what MTI was started -- that's one of the key roles that we play in Maine is funding of innovation. We do that as Matt said through seed grants, through conditional loans that help share the costs and share the risks with companies across the state in terms of carrying out market research, building prototypes and testing, filing for intellectual property so that they can capture the economic benefit of their innovations. All of this is matched by the company so that we're not replacing but rather stimulating that kind of innovation. We make those investments around $5 million total a year. In addition to that we manage a $53 million bond program that was passed by the voters of Maine in November 2007 that focuses on investing in our

research and development infrastructure so that we're funding equipment purchases, facilities renovation and facilities development. All of this is under the seven broadly defined technology sectors that were set out by the State of Maine about a decade ago.

Within that we've identified high-potential clusters and for those of you who saw it outside, we have a four-page version of a 200-page report that goes into lots of detail about the high-potential clusters that are within those seven broadly defined sectors. The first thing we do is invest in innovation. A terrific example of that just in the last couple of weeks, Ocean Renewable Power Company has been testing with MTI and private investment support testing the largest tidal power turbine in the United States off the coast of Maine. They've recently received a $10 million Department of Energy Grant to now put in a grid-connected tidal power system. This is critically important. Maine has very strong tidal power resources so that we are building on our strengths. It's also critically important because it's taking place off the coast of one of our poorest counties in Maine -- far Down East part of the state very geographically isolated and has been struggling to keep its employment levels high during times when we've been losing the fisheries and some of the older manufacturing opportunities -- I think a terrific example of that kind of seeding of innovation that is now taking root.

We second thing we do is find cluster initiatives. The earlier panel has some terrific examples of it. Particularly for Maine we know that rural states don't naturally have the density of networks, the density of companies and other important economies of scale that some of our larger state partners and colleagues have. MTI funds cluster initiatives that are building on our strengths. They're typically industry led. I think it was Albert in the earlier session who said I'm running my company, I'm making payroll, I don't always have the time to be building a cluster so sometimes these aren't necessarily run by a company but they might be run by a trade association or even a university center but always working very closely with a number of companies in that cluster. They're typically undertaking activities to either find solutions to constraints to growth or maybe branding their industry. We heard a little bit earlier today about branding Vermont cheese. We've been branding Maine built boats for example, not just the individual companies' boats, but Maine built boats as collectively very high quality and very advanced boats either small sailboats, mega yachts or military ships because we have a 400-year tradition of boat building in the State of Maine and a great skilled workforce, resources, obviously access to the coastline and harbor areas. That's maybe one example.

Another again is building on our agricultural resources,

having a great deal of strength in our university system in crop science and soil science. Having a lot of agricultural area, many farmers -- we've been growing potatoes for years in Maine. We've funded work that's been looking at adding value through specialty food and beverage production but also looking at converting the starch from our potatoes into polymers into polylactic acid that can be used to make renewable plastics, so building first with adding value through perhaps potato vodka or drying Maine blueberries but now leveraging into a much more technically advanced area involving polymers.

We're also doing this with very rigorous programs and published RFPs. We involve cluster experts to help us evaluate proposals, doing it in a way where we're trying to educate our cluster builders as well as fund the best possible examples.

Finally and very quickly, evaluate, evaluate, evaluate. I'm sure we'll talk about this more, but all of our programs are part of an annual evaluation and we've commissioned these periodic reports and analyses on Maine's clusters so that we can be understanding where our strengths and weaknesses are and how it progresses.

MR. CHASE: I know the President -- Dr. Prozena?

DR. PROZENA: Obviously I represent universities generally and let me focus on some of the things that the University of Akron has

done to stimulate some discussion about the continually emerging and developing of universities.

As Michael Porter reminded some of us last night, universities often are critical anchor institutions in cluster development and frankly we are also involved in job creation. We are some of the industry that is growing fastest along with health care, but also develop an array of other forms of capital besides human capital, cultural capital, knowledge capital, social capital, et cetera. Yet we're doing to at the time when it wasn't so long ago that some people thought of universities particularly public universities as simply entities that gobbled up good taxpaying land and took it off the tax roles and didn't have any other conceptualization of it. Also it wasn't so long ago that universities themselves thought that it was immoral to consort with business to do anything related to economic development. Yet as we are increasingly seeing, many universities like mine have been engaged in economic development activities for many decades and mine for 140 years. We grew up alongside the -- industry and have been evolving as that industry completely disappeared from the United States or in large measure, but the elements that were there began to diversify as a consequence of the interactions that had taken place and the talent that had been put in place. What happened for example in Ohio was that we started with four companies in the 1870s, today there are

over 2,800 companies in Ohio, 1,800 companies just in northeast Ohio alone, and for Ohio this is an industry -- Betsy talked about polymers from potatoes -- but this an industry that is touching many other clusters. It's now worth to Ohio in excess of $50 billion and it's continuing to grow and diversify. In many areas it's growing by productivity, in many areas it's converging with other industry cluster by virtue of the adjacencies and the fact that whether it's in plants or in our own bodies, if you take the water and the minerals out of us the rest of us are polymeric stuff and that gives us the wonderful adjacency and convergence which enabled us to work with the -- Institute, thank you for winning one of those I-6 awards.

The fact is that in order to interact with this industry cluster and with others, we've had to develop new tools. Most of you may have gotten this handout, if not I'll just speak to it. Most universities do this. That is, they do two things where they deal with economic development. They do licensing of technology as permitted and of course allowed by -- Public Law 96517 Act of 1980, and they occasionally start a new company. Typically that's it. I'm being a little blunt. There are many other things that happen. By contrast this is what a research found has developed as a very broad, productive and robust portfolio. It consists of many different tools in the tool chest, well over 35, it ranges from things like neighborhood revitalization acting as a developer of real estate

assets. We also harness for example the technical libraries of companies, bring them together and make them accessible back to everyone at a much lower cost. We in other words amass and coordinate assets that would otherwise be distributed and very weak. We do that quickly, we do that -- space in ways that are useful to emerging companies. We do a great many other things.

We also manage intellectual property portfolios for other organizations. We bundle our own intellectual property with those businesses that often have hundreds if not thousands of patents that are sitting on the shelf not being used. We manage intellectual property portfolios for other universities as well as for other organizations that may have access to intellectual property. We engage in synergistic partnerships both regionally and internationally that being about collaborations -- both education and research. And in short we do a great many other things.

Several of the speakers earlier today and Betsy's comments -- also found it necessary to take this industry which mind you is $50 billion plus and work with them to bring about the creation of an industry-related association, there wasn't one until 10 years ago, and a strategic advisory body to the State of Ohio to the governor to have them better understand the role of a $50 billion industry that they didn't even

recognize. One of the messages here comes from the original Cluster of Innovation report and of course is underscored by the new clusters report that Brookings released, namely, that one of the fastest mechanisms to move the economy along is to build on your strengths. There is nothing wrong with emerging clusters particularly when they relate to existing clusters, but adding 5 percent to a $50 billion industry is always far more than adding 100 percent of nothing. Not to demean emerging clusters. They are very important and they're going to lead into development, but if you don't have adjacencies, some of those may go nowhere and if you bet on them alone you will ignore your greatest assets.

I'm happy to chat in more detail, but these are some of the things we're doing and thank you very much.

MR. CHASE: Richard?

MR. LUNAK: Thanks, Matt. My name is Rich Lunak and I'm President and CEO of Innovation Works. We are the Ben Franklin Technology Partner of southwestern Pennsylvania. We serve nine counties in southwestern Pennsylvania including the Pittsburgh metropolitan region and we also work in a larger economic cluster that includes eastern Ohio and West Virginia.

I think on some level to understand the origins of our organization and what we do you need to look into the history of

southwestern Pennsylvania and Pennsylvania. As many of you know, about three decades ago we went through some significant collapses in our established manufacturing and industrial base, most namely the steel industry which interesting enough has rebounded and is thriving in our region again today. But faced with a lot of those economy challenges, the state and local leadership was at a crossroads and had to decide how to reinvent our economy and rebound from what at the time verged on 20 percent unemployment and in Pittsburgh over 200,000 jobs lost. To give you an example of that, most people when they think of Pittsburgh often times think of the Pittsburgh Steelers who are renowned for having one of the best bases I think in the NFL and -- Super Bowl fans and whenever we play in other cities people always remark you have so many fans in the stands. It seems like half the stadium is -- oddly enough, a lot of that is not necessarily our fans traveling to those cities but really a legacy of our outflux and outward migration of 200,000 employees who now lived through the 1970s era of great teams who are now there.

Last week Governor Thornburgh and two other governors of Pennsylvania were on a panel at the State Science and Technology Institute and Governor Thornburgh who created the Ben Franklin Technology Partners had this to say about the program. We developed an interest for the use of our technology resources out of necessity. We

were in the throes of a major economic trough as the unemployment rate reached as high as 18 percent in 1981. There wasn't much choice but to look for an alternative. Though the Ben Franklin Technology Partners we created a whole new more future-oriented for our economy to build.

Interestingly, that program has now since its initial launch been supported by four other administrations in Harrisburg both Democratic and Republican and the story is not only one of the Ben Franklin Technology Partners but also foundation -- corporate, civic leadership and other organizations coming together. Our region has rebounded. Last year we hosted the G-20 summit. We've been cited by national sources like the *New York Times*, the *Wall Street Journal*, and *Time* as a region that's weathered the recession. We've been named as one of the top tech towns, the fastest-growing region in the country for new venture capital and others and we're proud to play a key role in that.

Very simply, what the Ben Franklin Technology Partners do is we provide access to capital investment, business expertise and access to networks and hands-on assistance to help support a homegrown strategy. So this is not about company attraction but really leveraging the resources in our region to build the next great future engines of growth for our economy. Some keys to making that happen is we employ a staff that are largely former entrepreneurs, technologists, innovation leaders who

have built commercialized products, raised capital and created successful companies. We provide seed investment. We're the largest source of seed capital and we've worked very hard to help bridge our companies across the proverbial valley of death. In many cases these high-growth companies are companies that will need to raise millions of dollars before they ever reach revenues and those earlier stages the private sector often times views them as too risky, so we provide some of that initial seed capital to get these companies off the ground and then help them to build their businesses, assemble the right teams, get together business plans and then network them to critical follow-on investors so that they can grow.

The success has been amazing. Innovation Works alone over the last decade out of our seed fund has invested in about 138 companies. They've gone on now to raise about a billion dollars in follow-on investment, about 75 percent of that from outside of our region so these companies are net importers of capital. We help them secure the right kind of talent for their teams. We work hard with key partners in our region, most notably our universities. Pittsburgh is blessed to have two really large research universities that in some ways rival the universities in Cambridge in terms of having very close powerhouse research institutions so we work hard to commercialize that technology. We've helped create

new investment funds, Angel Networks, we do a lot of education outreach, et cetera.

The results have been great. Some of the largest companies in our region trace their roots back to the seed investment and assistance of this program. I'm actually an example of that. I helped create a robotics company that now employs about 2,000 employees and does a few hundred thousand in revenues and a lot of other companies.

I'll close by saying the momentum is there. We are starting to see a real pick-up in some critical mass building. Since June 1 we've had some remarkable stories just in the companies we work with. We have a company called Knop Neurosciences that is commercializing their therapeutic to cure Lou Gehrig's disease, ALS. They just signed a $345 million licensing agreement to commercialize this technology with Biogen, a European pharma company. LinkedIn the large professional services social network made their first acquisition in one of our local companies. We have the second-fastest-growing on the -- 500 -- in our portfolio, and the list goes on.

MR. CHASE: Let's hear from Duane and then we'll get to the Q&A.

MR. ROTH: Thanks. When you introduced this panel you talked about regional actors, I was thinking that I'd better clarify that

Hollywood is 100 miles from San Diego and that's where the actors are. We think we're in business and trying to make things happen.

Twenty-five years ago in -- there were really four clusters in San Diego. We had the tourism cluster, we had financial services, and then the standing military, the biggest military payroll in the world and the defense contractors. In the mid-1980s the Cold War was ending, the savings and loan debacle was taking place which resulted in over 10 percent unemployment in San Diego. Dan Peg the head of the Economic Development Corporation got in his car and drove up to the -- Mesa to the University of California and met with Dick Admenson and Mary Wolshock who's in the room today and said what is all this high tech, biotech we keep hearing about? Is there anything there? Dick responded that he was at Stanford in the 1960s and he said that science and technology in San Diego is very bit as good as it was in the valley, it's better probably. But he said the difference is they don't understand venture capital, they don't understand entrepreneurship and this community has no culture for commercialization, so we're publishing papers but we're not doing anything in the economy.

They drew together two entrepreneurs. Dick called Erwin Jenkins and David Hale, Qualcomm -- first biotech company. They came together and said let's form an organization that sits really within the

university under Mary's direction but operates independently for the region to help commercialize. The rest is sort of history. Today there are 50 research institutes on the Torrey Pines Mesa, five new ones in the last 2 years, two more being formed and San Diego State became a very important partner for the innovation economy -- which is $2-1/2 billion a year of research which has the mandate to help commercialize and both bring things into -- but also to take things out so that it is quite robust.

We have 600 defense and securities companies, 600 biomedical, 1,000 wireless, 800 software companies and 600 support innovator companies. From the defense industry the golf club industry was born. The material science that went into that -- in production of new golf clubs, but there are surfboards, skateboards, anything you want to name, 600 companies now operating in San Diego in material science and a lot of the things that go on there.

About 10 years ago when we participated in the first quarter study of cluster, San Diego was one of those. Deborah Wince-Smith was interviewing me and asked what's next? What's going to happen? I made the comment that I think it's going to be beyond clusters. I think it's going to be where these horizontal clusters start to converge to form new products at the margin and the challenge is that those horizontal clusters know little about the regulation and the markets and the things that are

going to be in those new clusters. So today we've called that in San Diego the convergence cluster and it consists of really three right now, wireless and health. Somebody mentioned wireless and how important that's going to be. More people in the world have a cell phone today than have a pair of shoes. There are people who have never seen a doctor and never will who will get their health care through a mobile phone. Monitors are being created. In fact, I can show you one that can do an ECT, monitor every vital sign for 7 days on a Band-Aid -- somebody is looking at that data to notify you if there's a real problem and you need to get in. So that's a huge area.

The two others very quickly include biofuels. What does biotechnology know about commercializing fuels? Absolutely nothing. So how do we pull that together and make that happen? We have a robust cluster in that area. Finally you heard about today. Solar will depend a lot on storage. How do we store locally that energy we create so we have this continuous supply? So I see that as what's next.

In closing, what this innovation economy has meant to San Diego, it's 5 percent of all the employers, it's 10 percent of all the jobs and it's 25 percent of the payroll. So 5 percent of the companies generate 25 percent of the payroll in San Diego County.

MR. CHASE: And now we know why most military bases

have golf courses. Both of mentioned or several of you mentioned the word convergence in different forms. One of the criticisms that we hear about cluster development theory is that it's too restrictive or too narrow in focus, that you should be focusing on economic diversification or involving your industries. It seems like what you're talking about with convergence of existing clusters and how to leverage that and how to get them to interact is the key. As intermediaries how do you go about doing that? How do you get people to the table? What is your message to the business leaders, to the universities, to your nonprofit partners about the importance of coming together and leveraging what you have for the future?

SPEAKER: Maybe I can talk about how that all happens. One of the advantages of San Diego is that these research institutes are all together. They collaborate. And then around that is -- you couldn't differentiate a place where there's wireless and biotech or biomedical. They're all on top of each other. So in those discussions early on it became apparent that the medical industry had no clue what wireless could do for them. There were all these ideas being generated by wireless guys and no clue. The wireless understand the first thing about the Food and Drug Administration. How do you get regulatory approval? What are the rules? Second, how do you get paid? We're used to

consumer markets. We're not used to reimbursement from insurance companies or CMS. So that became the focal point of bringing this all together, that convergence.

One last piece of that just recently, these wearable sensors that are going to become ubiquitous on monitoring your health generate enormous amounts of data. It's looking for a needle in a haystack that one signal that somebody has to have when there's a whole bunch of noise just from day to day. Where else do we have that in San Diego? The Predator is in San Diego. It's made there and produced there. Looking for needles in haystacks up in the air all day long. So how do we put those people together to figure out how they're sorting out the signal they want to look at? So that gives --

MR. CHASE: Dr. Prozena can you talk about it? In Akron you guys have done a ton of work on this.

DR. PROZENA: Again there are a number of industrial clusters in northeast Ohio, some which have been around for literally over 100 years. One of the things that we're seeing out there -- San Diego is noting and talking about is the beginning of convergence among these clusters. That's another reason why we should -- building on our existing base because our existing base will begin to migrate wherever there are opportunities. In our case the emergence of new knowledge about

polymers and the emergence in particular of functional polymers, polymers that have electronic capability where the crystals are polymers and simply do what you see liquid crystals doing. In the case of medical applications I mentioned the success that we've had with the Austin -- Institute. What this has highlighted is new opportunities arise from old technologies as new knowledge -- and opportunities for cross-fertilization comes in.

The irony here is that working across previously fully isolated clusters or disciplines is not easy work. It is very, very difficult. Creating collaboration among these disparate partners is not only very hard work, it brings about partnering paranoia and relationship fatigue as we've called as council's collaborating report highlights -- places but it's very vital because that's where things are happening. Just to give you one example. In the case of the I-6 award what this came about -- is preceded by about 4 years of very hard work where we and three hospitals in our immediate area together with a regional medical school began to talk about building a collaboration building on our strengths and the primary strengths that we began to see existing were first the material science, particularly the biomaterials emerging cluster if you wish in terms of research together with the obvious application that biomaterials and orthopedics and wound healing and potentially many other areas as again

San Diego is noting. So with this type of sense of an opportunity building on the clinical infrastructure in the hospitals and medical schools and the basic research strength at the University of Akron, we made a proposal to a major foundation, the -- Knight Foundation which leveraged a significant investment from them which leveraged an investment from the state which leveraged an investment from the private sector and before you knew it we had some real capital to work with and build a kind of investment that I wish states would recognize would be their quickest way for both economic growth and job creation -- all of you out there that are -- with universities, if you can convince your state to create the infrastructure and the new positions for high-edge competitive scientists -- money, that is money that -- be in your -- for those talented people and guess what, that money will create technical jobs, support jobs, graduate student jobs. Guess what happens after that? You create a positive feedback cycle. So it's that kind of collaboration at these intersections that are so very vital but also very difficult to do.

MR. CHASE: Since we're in Washington we want to talk about policy. One of the things in the title of this convergence if the word regional and a lot of people want to try and figure out how do you define regional. Some of you were talking about multistate collaboration. Some of you Maine you have a neighbor to the north. In San Diego you have a

neighbor to the south. How do you force this regional collaboration or how does it occur where you can't force it? And what role does federal policy play? Did programs like the I-6 Challenge give you an opportunity to break down barriers through the application process to bring people together who maybe normally weren't collaborating? Was that helpful? How do you go about working regionally not just the public-private-sector partnerships, but on the public side as well? Richard?

MR. LUNAK: I think one of the keys is these really require dynamic public-private partnerships and you need key leaders in the community to in many ways step up and support these initiatives and then get behind them and be evangelists for the causes and create some of the access. In our community I think you saw the lead role that our state government played early on. Other key players have certainly been our foundation community and our universities have been really critical. In Pittsburgh the education community and our university leaderships have really spurred a lot of the economic development activities and helped provide an interface to the corporate community.

On a broader regional level though, these regions aren't defined necessarily by state, county and traditional political boundaries but, rather, in economic boundaries. So in our case maybe -- opportunities to collaborate stem into West Virginia or into Ohio. We are

working very collaboratively for example with northeast Ohio on something called the Tech Belt which will take the corridor that's roughly only about say 100 miles between Cleveland and Pittsburgh and align some of the research entities, the Cleveland Clinic, the University of Pittsburgh Medical Center, Case Western, Carnegie Mellon, and some of the leadership that have stepped up have been Congressman Altmeyer and Congressman Ryan, two congressmen in that region, who have recognized that opportunity, started to bring some of the teams together and are starting to facilitate it. In particular, we collaborated on an I-6 Challenge across those regions that didn't win, but those are some of the example I would mention.

MR. CHASE: Do you have something you want to add?

MS. BIEMANN: Maine as many of you know borders Canada and in fact Canada is Maine's largest trading partner. So there are a number of ways. We have participated in joint analysis on shared issued whether it's biofuels and forest resources or particularly in the new renewable energy area there has been also some shared analysis where folks have gone in both -- simultaneously people can get Maine resources, Canadian resources and then lessons learned from that. At the higher-level policy level I know our governor, Governor John Baldachi, has had a number of -- initiated together with some of the Canadian premiers some

policy and renewable energy partnerships. So we look to the north quite a lot. Those are probably a couple of examples there.

It's been a little more challenging at times in the New England region. Part of that is you could fit all of the rest of New England into the State of Maine, and so some of the challenge is the distances are farther. If you live in Aroostook County and drive south 6 hours you're still in Maine, whereas if you live in Portland and drive 6 hours south you've gone through a number of states. So we had a bit of an interesting conversation with Michael Porter yesterday evening about some of the challenges that the rural states have in connecting regionally. We can always do better and we have to, but it's an interesting debate as to whether some of the rural areas should hook on to the clusters in some of our larger state neighbors and partners or whether we should also grow on our own or build on our own strengths that might not necessarily be shared with some of our more populous neighbors. I think that's a policy area particularly and as the federal government takes the policy through concepts to the federal policy level I think there will be some really interesting conversations around issues like that.

MR. CHASE: Does anybody want to add something before we open it up?

SPEAKER: I'll add just two things quickly from --

perspective. We have this culture of collaboration that we talk about all the time, but it's really happened because of proximity of those research institutes. When you can walk across the street from UC San Diego to Salt or to Sanford Burnham or Scripps Institute, that helps a lot in the proximity. But once that gets -- then you can collaborate much broader and that's been my experience with San Diego is that the collaboration that started locally now extends and in this whole competitive era I don't think the country can afford not to collaborate. There are so many things that we need to work on together that are very important.

I came to San Diego in 1989 and every day that fax machine went off and it was the head -- Bill Oderson trying to get me to have a meeting. Finally I met with him and Bill left a $5,000 check and a commitment that I would go to my direct competitors and tell them everything I knew. I came from Johnson & Johnson and you just didn't do that. But that culture I think is so important to the future that we recognize that there's a time to compete and there's a time to collaborate.

SPEAKER: Very briefly. One of the lessons from both the Brookings Metropolitan Program and the Council on Competitiveness is that economic geography does not match up with geopolitical geography and it's very difficult to get that message across to the actors that are so traditionally embedded in the geopolitical mapping sphere. People in

Cleveland think it's farther to go to Akron that for us in Akron to go to Cleveland for example. The tool that I've found most useful to try and communicate obviously at a micro level is GIS mapping of economic targets. But at a macro level just one of the satellite imagines from NASA taken at night of the United States and look at your region. It doesn't have state boundaries, it doesn't have city boundaries but the light that aggregates at night defines your economy geography at the macro level. It's a very powerful tool.

SPEAKER: I should have mentioned that one of the collaborations we have -- we don't have a lot of professional services in San Diego. We have a lot more than we thought. But we did a collaboration with -- you're going to hear from John Wick later today. That collaboration got started with a meeting that said we have some things your people probably need -- so that's a very strong partnership.

MS. BIEMANN: But also I'd say it can't be manufacturing just like you can't manufacture clusters and you can't manufacture collaboration. They really do need to be led by the need and often by the entrepreneurs and researchers and then building them around.

MR. THORNBURGH: I'm David Thornburgh, the Executive Director of the Fells Institute of Government at the University of Pennsylvania and I used to in a prior life run an organization called the

Alliance for Regional Stewardship which was trying to encourage of these kinds of collaboration which as you point out is essential and very, very difficult to do.

The question is do you feel, and all of you have been in this field for a while, that that collaborative gene is being replicated in your different areas whether that's government or higher education or nonprofit organizations, trade associations, what have you? I think you all just said in your last statements that unless we can find ways to do that this stuff just doesn't happen.

MS. BIEMANN: MTI is itself a collaboration. We've a publicly funded industry-led nonprofit organization so some of helps if it's embedded in your structure and you have to do it so that's one. But we also draw on an amazing -- we have seven technology boards and each technology board is made up of businesspeople and researchers from each of the broadly defined seven technology sectors where we fund. Again as a group I think there are about 100 folks who volunteer and provide over 5,000 hours a year of a contribution of their time and their wisdom to help us do what we do.

What's very interesting is that then these are little laboratories and discussion opportunities for a lot of these ideas to take place. Maine was one of the first generation wired grant awardees I think

in large part because we had the composite center at the University of Maine which was doing terrific research and had gotten some cluster funding from us to be actively working with industry. We had a composite materials technology board of folks who had been coming together three times a year plus for the previous 7 years. So a lot of those networks were there and we were able to very quickly build on those to come up with a successful application to that. Some of it is just even in how you structure the organizations and partnerships that internally are collaborations to help then foster new collaborations.

MR. CHASE: One of the issues with when we've talking about the valley of death for entrepreneurs and startups and several of the organizations have investment tools whether they're loans, grants or even equity investment. What role does that play in bringing people to the table? Is that a strength? Do people just want access to the money? What role does that play?

SPEAKER: I think it plays a huge strength. I think it's important to realize however that most if you wish investment opportunities that exist tend to be focused at companies that are further along the path to commercialization and in our case most of the things that emerging out of universities tend to be -- concepts and require really a lot of nurturing. So what has happened in northeast Ohio is to take care of

startups that are a little further along. There's a wonderful organization called Jump Start that many of you have heard about and I think Ray -- is in the audience today. But there is also a need for Angel Networks and -- other forms. So in partnership for example with -- County Community College we've created an community fund that generates the opportunity for grants of $25,000 to $100,000 in partnership with a lot of area entrepreneurs and people who want to get in on possible opportunities. We've created three Angel Networks one of which is called Archangels just for fun -- regional change agents, and these are very vital in moving -- the networks the flow of capital to seed really early startup companies -- venture capitalists or even entities like --

SPEAKER: We have never had a fund -- connect and I'll tell you why. Of the 200 to 300 companies we've helped start here, we would have to say -- vast majority. They then have to go to the real world to try to get money -- they went through the -- Springboard Program and were members for 6 months and they -- so while I want those pools of capital there, I want many of them and I want them independent so we can introduce them to everybody.

Secondly, nobody looks at us and says you're skimming the best for your investment portfolio. We don't do that. I agree with the valley of death and grants and -- to give that sort of proven concept that

we go one step further. But I want to close just with a quick comment about government policy since that's what you asked about. We feel so strongly that that organizations like ours must get back to Washington -- 90 percent what we care about is legislative that we opened an office here 6 months ago. Kim -- heads that office. It's the University of California. And we're here not to advocate for -- but to advocate for policy that will drive investment and produce early-stage ideas, the so-called valley of death. We're here to advocate -- we're here to advocate for a tax policy that can be used today that would throw tons of money. What we're doing here with some of these grants, $15 million, $10 million nationwide isn't going to do it. What we need is to get the private sector loosened up with some policy that will take their balance sheets, take their foreign profits, it will take their R&D tax credits and incent them -- you have trillions of dollars -- but Congress doesn't want to reward that make money in foreign countries so they tell you you can't bring it back without a 35 percent tax. And they say fine -- but if they bring it back -- what we just talked about here today, that could change the whole world.

MR. CHASE: Are there any questions over here? Eric?

SPEAKER: Eric (inaudible) with (inaudible) Works. I'm following-up on a comment that Betsy made. It's kind of an advertisement for Betsy but also a prompt. You talked about evaluation. I'm part of the

team that does the annual evaluation in Maine so I painfully live through this every year. I don't think we're doing any kind of leading-edge evaluations in Maine but I think one thing that's very important in Maine is that they've been doing it for about 8 to 10 years straight on a regular basis as opposed to a one-time evaluation that's used to get money for the program. And I thought if Betsy might talk a little bit about the power of having that kind of decade of data on the impact of your programs and how that's helped MTI and other -- make the case the politicians --

MS. BIEMANN: It's critical. We were talking before the session about how -- and a little bit during the session about how this is really a marathon. It's not a sprint. Yet the political process is a shorter sprint. We have found that our evaluation results not only for MTI but all the states -- invest in research and development have really led to sustained investment across administrations and across term-limited legislatures in ways that I really think would have been very challenging without that data. So we have found it critical. And it's also been an important learning opportunity though. Early on Maine was investing more in research and I think assuming that the fruits of that research would magically transition into the commercial sector and I think over time the evaluation has helped us realize we need to focus much more on the tech transfer and commercialization than we have over time.

I think another thing that's been really important is that the evaluation although it's primarily quantitative, it's also qualitative. There are also case studies that are part of it. And I know again there was some discussion last evening about the values that are quantitative versus qualitative and I think the answer is you need both because we're not only using this for understanding what's happening, for measuring what's happened, for communicating and advocating around what's happening, but also for learning best practices and not so best practices and being able to share them across clusters. We're starting this fall to bring together our cluster initiatives across clusters because some of these issues are generic. How do you sustain trade associations in emerging clusters where you don't have a critical mass of companies yet? How do you use technology to shrink geographic areas and bring people together? So without the case studies and more qualitative information it's harder to make those improvements in the quality of what you're doing. Thank you, Eric.

MR. CHASE: We have about 2 minutes left. Why don't we give you each 30 seconds to give some closing remarks and words of wisdom. Why doesn't Richard start? You already gave yours so we'll come back to you last.

MR. LUNAK: I think I'd leave with these remarks. I think it's

great that the administration is putting so much focus into this area. I think some important policy recommendations recognize that there are a lot of great activities happening out in our states and regions and there's a role for the federal government to support those and help catalyze them in regions that there aren't -- in many cases these rely on -- it's a contact sport at a local level that requires these dynamic public and private partnerships. It can't be a top-down initiative. It has to be more from the bottom up and I think there's a great opportunity to help the nation create these high-growth vibrant clusters throughout.

SPEAKER: Building on what Richard said, I think it's difficult to create a policy that fits the diversity that exists across the country, never mind even within a single state. It's important that states themselves recognize the diversity of their economic geography and many states do not. It's equally important that the federal government builds programs that can be responsive to that micro set of needs or geography and there isn't a mechanism to do that. That's in part an argument why there are many congressmen who like earmarks. All the earmarks aren't bad and I would suggest that if we had a good mechanism for states to understand the needs of their micro economies if you wish or the regional economies and to interface them with the federal government we might have at least one mechanism to gradualize earmarks and get away from everybody --

MS. BIEMANN: Preaching to the converted here, I think the flexibility that's very helpful in terms of responding to geographic diversity, that not all clusters are biotech and IT, and particularly for rural states to participate in the economic vitality that we all can come and is coming from these kinds of investments being able to be flexible across types of clusters I believe are very important.

MR. CHASE: Duane?

MR. ROTH: Three things quickly. The financing model that we've used the last 25 years is broke and needs to be replaced. It has to be more predictable and more sustainable and we should focus on the community there. That's what's got us where we are, but the bubble economies that were mentioned earlier today are not the way to build these kinds of ideas.

The second is that we have to work together on this policy arena to bring the private sector back into the investment base, give them the incentive to do it. And then I think maybe the last thing is to refocus on manufacturing. American industry focus on manufacturing is incremental while the Chinese today and the South Koreans before focus on it as a business. And I think we have to think about that. Ten years from now build it and they will come. Don't build it and they'll never come.

MR. CHASE: Let's thank our panelists. Just a commercial.

We're going to take a quick break and then we're going to have lunch and then we have a great luncheon speaker with the President and CEO of Eli Lilly. I want to tell everybody this afternoon to please stick around. We have Jason Furman of the President's National Economic Council. We're also going to have Secretary Tom Vilsack of the U.S. Department of Agriculture and other leaders from SBA, the Department of Energy, USDA and -- we'll stand adjourned and thank you again.

(Recess)

MS. WINCE-SMITH: Good afternoon. I'm Deborah Wince-Smith, the president of the Council on Competitiveness and I'm delighted to be here today to join you for this very important seminal conference on regional innovation clusters.

I think you all know that over the last 15 years, the Council on Competitiveness has really driven and recognized just the pivotal power of innovation clusters as the driver of our national competitiveness, our position in global markets and the standard of living for all our citizens. You know, I was just thinking back a little bit in time and remembering in 1998 when the Council had our first National Innovation Summit that Chuck Best hosted at MIT, that Duane Ackerman at NCO Bell South and Michael Porter -- we all came up with this concept of really doing a first U.S. study on regional clusters of innovation. And we studied five regions

across the country and really kind of laid the foundation for what has become not only a national movement here but all over the world, the recognition that clusters, clusters strategy are these core building blocks.

I just wanted to share with you that we've continued over the years to work in this area collaborating public-private partnerships. We just issued our new report, "Collaborate," that really talks about regions acting as regions and the leadership networks that enable all of this. So I hope you'll have all have a chance to look at that. And very importantly, you know, when you look at our energy transformations, the nexus between the digital, genomic, atomic revolutions, what occurs in the regional areas to drive these transformations again are going to be at the heart of how we create, build things, revitalize our manufacturing, and the job creation. And this all occurs in regions.

We have launched at the Council our 21st century Manufacturing Competitiveness Initiative that's being led by our new chairman, Sam Allen, the CEO of John Deere and the CEO of Applied Materials, Mike Splinter. And the regional component is going to be embedded in all of our work to look at this whole complexity of the value chain of 21st century manufacturing. So we're so pleased to continue and partner with the Brookings Institute, the Center for American Progress, and the National Association of Development Organizations.

Now, it is my very distinct pleasure to introduce our very special keynote speaker, Dr. John Lechleiter, who as you know is the CEO and chairman of Eli Lilly Corporation, one of America's great innovative companies that started some years ago, you know, providing the most transformational health care solutions to America. And I just was telling John when we were talking before the program started that I'm not going to say how old I am, but when I was in eighth grade I did do a science project in Akron, Ohio, with my father who is a doctor. We actually grew penicillin in our basement and then created the bacteria to test this. And the whole kit and everything came from Eli Lilly. So I have great gratitude to Eli Lilly for getting at least a good place in the science fair.

But, you know, John Lechleiter has -- he's also very rare to be one of our CEOs who has a tremendous background in science. You know, he's a distinguished chemist. He has his Ph.D. from Harvard University. He also has business experience. And we had the honor and pleasure of working with him some years ago when we started our big national innovation activity in San Diego and elsewhere. He's on many corporate boards from Nike to leadership in Pharma. He's very engaged in the civic work of Indiana, and he's also really helping our country in the global trade arena as well.

So before I ask John to share with us his perspective on the power of clusters, I would like to recognize and congratulate our executive committee member present, Louise (inaudible). I understand you won an award today for your work in northeastern Ohio. And thank you very much, Louise, for all your leadership in this area.

Final note on Eli Lilly, this could be a test. Does anybody want to guess what was the first pharmaceutical company in the country that recognized the power of high performance computing for genomics and protein folding? I think you know the answer. Eli Lilly.

John. (Applause)

MR. LECHLEITER: Well, that chair was so comfortable I thought maybe I could just speak from there.

Well, thank you, Deborah, for the very kind introduction. And thanks to the Brookings Institution, the Center for American Progress, the Council on Competitiveness, and the National Association of Development Organizations for inviting me and inviting many of my Lilly colleagues as well to be part of this conference on regional innovation clusters. It's great to be here with you in Washington this afternoon.

Indeed, the sponsors of this conference themselves represent quite an impressive innovation cluster. Don't you think? It's an honor to be in such distinguished company and to be involved in this

discussion at the very time when we need powerful, new ideas like this to create jobs and to spur economic growth.

What I have to say to you this afternoon in my remarks may surprise you, and I hope it does. My story takes place in a state that has lost more than 200,000 jobs in manufacturing since the peak in the late 1970s. Yet, what I aim to describe this afternoon is a remarkable success story of economic vitality and job creation. If all you ever hear about Indiana is the Indy 500 or basketball or Peyton Manning, God love him, you may be surprised to learn that the story I have to share with you this afternoon is the story of a life sciences hub, far from the coasts, deep in what is affectionately known as The Heartland.

What's happening today in Indiana and in other places around this country demonstrates the power of regional innovation clusters. When you see what's possible as we have, it's clear that we must pursue every opportunity, including regional clusters, to develop a full, intentional American innovation, to create the new jobs we so urgently need, and to seize the opportunity inherent in the 21st century economy.

So let me open my story with a bold statement. Though every state wants to be a hub for life sciences, Indiana really is one. Now, these aren't my words, unfortunately. This is the assessment of The Economist in June of 2009. It reflects strong growth in Indiana's life

sciences sector over the past decade, confirmed by the Kelley School of Business at Indiana University in research published last year.

Between 2001 and 2007, payroll employment in Indiana life sciences industries grew by nearly three percent a year. That's more than twice the national rate of life science job growth. Now, during that same period, total Indiana employment was growing at an annual rate of just 0.2 percent. And employment across all Indiana manufacturing was contracting by about two percent per year.

So life sciences were absolutely critical to replacing jobs that we lost in autos and in other manufacturing. Life sciences represented in this period, 2001 to 2007, nearly one-fourth of all job growth in Indiana. This is a clear case of creating 21st century jobs to position our state for the future, and it's obviously a trend we'd like to continue.

As a result, today Indiana is home to more than 1,600 businesses in the medical device, pharmaceutical, drug development, diagnostic, and ag and biotech sectors. The annual wage of a typical life sciences job in Indiana today is about $82,000. That's more than double the annual or the average wage across the state.

Furthermore, the total value of Indiana life sciences exports more than doubled between 2002 and 2007 from $2.5 billion in 2002 to $5.1 billion in 2007. That figure is 7 percent of the U.S. total, and third

highest among all states behind only California and Massachusetts.

Now, this growth did not happen by accident. The exciting clock of this success story begins with Indiana's surprising strengths in life sciences and follows a clear strategy that might have predated the term "regional innovation cluster." But, in fact, we realize that's exactly what it was.

In 2002, Lilly and a number of others helped to launch BioCrossroads, a public-private initiative to develop life sciences in Indiana. We began with a strong base of global life sciences corporations. Not only Lilly, but also Roche Diagnostics, Dow AgroSciences, Guidant, Zimmer, BioNET, DePew, Cook, and others. And our state's major research universities, including Indiana University with its School of Medicine, along with Purdue and Notre Dame. And we invested it from a supportive state government and a generally positive business climate.

BioCrossroads in particular plays such an important role in our story. I'd like to give you a few details about that. BioCrossroads is sort of the glue. It's designed to form connections along Indiana's life sciences research institutions, corporations like Lilly, philanthropies and state government, to create new opportunities and to prepare for a future that will increasingly be global, networked, and entrepreneurial.

David Johnson, president of BioCrossroads, is here today.

I'm glad we have matching red ties on, David. And I'm pleased to have this opportunity to acknowledge and thank David for his great leadership.

Since its conception, BioCrossroads has directly raised over $245 million of market capital and philanthropic funding to identify and pursue promising Indiana life sciences opportunities. It is organized for venture capital funds that have invested in all total in 24 start-up Indiana life sciences companies and has attracted over $160 million of additional outside venture capital.

For example, since 2003, 14 Indiana-based companies, including five university-related firms, have received investments from the Indiana Future Fund. And the Indiana Seed Fund has invested in 10 university-based enterprises that are advancing today important discoveries in the diagnosis and treatment of lung disease, chronic pain, kidney disease, memory loss, coronary artery disease, epidemic infections, and cancer.

BioCrossroads has also formed eight sustainable enterprises to capitalize on our strengths in life sciences, such as the Indiana Health Information Exchange. I'll talk a little bit about that later this afternoon. And OrthoWorks, which supports growth and innovation in the orthopedics hub in Warsaw, Indiana, northeast Indiana, which is home to nearly one-third of the world's orthopedic device industry.

BioCrossroads has directly helped draw more than 3,000 new life sciences jobs to Indiana and has elevated Indiana's visibility on a national map of biotech, medical device, and health care IOT centers. And that's no easy feat because we compete, at least in this country, against hot spots like San Diego and Boston.

BioCrossroads has also worked to expand and enhance science and math education in grades K through 12, and within institutions of higher learning to develop the homegrown talent necessary to support a strong life sciences sector and to prepare young Hoosiers to take advantage of the opportunities it creates.

Lilly's involvement in BioCrossroads is much more than a story of good corporate citizenship. Certainly, we're rooting for our home state big time. But life sciences clusters strategy dovetails perfectly with our own business strategy as an innovation-based pharmaceutical company, particularly a key element of that strategy that we refer to as fifth net.

Let me explain that. The Lilly that I joined as a scientist over 30 years ago was truly a fully integrated pharmaceutical company. We call it a FIPCO -- fully integrated pharmaceutical company -- that owned the entire value chain from an idea in a researcher's lab to a pill in a patient's medicine chest.

As we enter the 21st century, Lilly adopted a new model. We call it fully integrated pharmaceutical network, or FIPNET. This FIPNET concept still stresses the integration aspect with Lilly assembling, orchestrating the network but more and more the pieces are linked through partnerships, alliances, and other relationships and transactions rather than always throughout by ownership. A well developed FIPNET allows us to cast a wider net for ideas, for molecules, for talent, and for resources. In the process, we can greatly expand the pool of opportunity. We can leverage our financial resources by sharing investment, risk, and reward.

This wider net is global, so not surprisingly we're doing more work in China and India, tapping into the vast intellectual capital in those countries. At the same time, a very essential part of FIPNET is right in our own backyard, building on 3,000 relationships we have with supplier sin our own state. This FIPNET strategy works hand in glove with the regional cluster strategy. Lilly is part of a growing web of collaboration in life sciences, expanding our network of drug discovery and development, as well as manufacturing in our home state.

As Jonathan Rothwell and Mark Muro of Brookings have written, "through easier access to share ideas, skills, and transactions, clusters exhibit external benefits that no one company can expect to

capture, making the social benefit larger than the (inaudible) the costs.

Here is an example of how it all works. In 2008, we sold Lilly's large research site in Greenfield, Indiana, just outside Indianapolis, along with our operations there to Covance, a contract research organization with which we already had a FIPNET-style connection. As part of the transaction, we established a long-term relationship with Covance for work that they continue to perform for us at the Greenfield labs. We followed a similar strategy late last year (inaudible) Tippecanoe Laboratories manufacturing site across the river from Purdue University in Lafayette, Indiana. We sold that site to Evonik Industries.

As a result, Lilly is a more flexible company, able to attack the capabilities of partners who specialize in services they provide us. Further, by unlocking what had been internal Lilly assets and allowing them to serve additional clients, both Covance and Evonik transactions opened the door to additional growth at these sites. And that's happening, leading to increased employment and broader life sciences capabilities in the region.

As a company that thrives on innovation, we draw strength from a strong life sciences community. Certainly, the Internet, and with the aid of the airline industry it's possible for our scientists to collaborate with their colleagues around the world. Lilly scientists do this every day.

But you know, our researchers don't really live in hyperspace or cyberspace or on planes, although sometimes it probably feels like it. They live like we do in real communities. They get involved in neighborhoods and schools and their places of worship. They benefit from having a wide range of career opportunities in their field right where they live. They still value opportunities for face-to-face interactions with others who do the same kind of work they do. So we believe strongly it's important to have a vibrant life sciences community in our state if we're to continue to attract and retain the best talent.

In many cases, Lilly alumni remain active in both the academic and commercial branches of life sciences around the state, at least six new Indiana-based life sciences businesses have been spun off or started with Lilly support. Take just one example. Former Lilly employees started a company called Collusive, which received venture capital funding from the Indiana Future Fund by licensing a Lilly pipeline molecule for migraine. In fact, when we launched BioCrossroads, David Johnson will remember, I described my vision, when we'd know that the initiative was a success. And that would be the day that Lilly has to compete for talent with all the new start-up and spin-off companies on our landscape. Day by day I believe we're getting closer to that chapter in the story of Indiana's life sciences hub.

So what's the moral of our story? With the right strategy based on a clear headed assessment of regional economic strengths and the engagement of a broad coalition from industry, academic, philanthropy, and government, all with a solid stake in the success of the mission, a regional economic cluster can be a powerful engine for jobs and income. And I believe we've proven it. The life sciences cluster I describe is certainly not the only success story. It's not even the only one in Indiana. A second initiative partnered -- patterned after BioCrossroads is building on Indiana's traditional strengths to create a cluster in advanced manufacturing and logistics. And other initiatives are applying what we've learned to develop new capabilities in technology and in clean energy.

Earlier today, of course, you heard from representatives of successful regional clusters across the country. Lilly is, in fact, engaged in other life sciences hubs, including the one in San Diego that Wayne Ross spoke about this morning where we opened a new biotechnology center last year, as well as in New York City where we're actually going to open a new research center next week.

The key question is are these regional clusters encouraging isolated developments or can they be part of a comprehensive national strategy to strengthen the economy of this country and create good jobs

for all Americans? And what is the role of federal policy in such a strategy? I believe that regional economic clusters are a vital element in renewing our nation's economy. In fact, today's event, in my view, could not be more timely. And I believe that federal policy plays a key role in the success of regional economic clusters at both the micro and the macro level.

The micro role for federal policy is essentially, we believe, the two-prong approach outlined in the President's 2011 budget. First, identifying and sharing information on successful clusters and their characteristics. And second, providing grants to support and strengthen clusters to promote economic development and job creation. This conference today is an excellent example of the first element -- building on the work of Brookings, the Center for American Progress, the Council on Competitiveness and others to identify and promote successful clusters. And I certainly appreciate the involvement of Secretary Lau, Secretary Vilsack, and other members of the administration here today.

For an example of the second element, grants to support and strengthen clusters, let me again cite our own experience in Indiana. From the beginning of our regional efforts in the life sciences, we've recognized one of the most valuable assets is clinical data. In 2004, BioCrossroads drove the formation of the Indiana Health Information

Exchange that I referred to earlier. We call it IHIE. To connect, exchange, collect, and analyze patient information from various health systems in Central Indiana.

By 2008, the Indiana Health Information Exchange was identified by Health Affairs as the most advanced health information network system in the U.S. In the past year, Indiana's leadership in health information technology attracted nearly $50 million in total federal funding under the American Recovery and Reinvestment Act. This included a highly competitive beacon communities grant to build and sustain the health IT infrastructure and achieve measurable improvements in health within our community. Such a grant is just one ingredient of the complex chemistry of a successful regional cluster and clearly no region can expect to be successful by depending primarily on federal funding, but it can be an important catalyst for creating essential capabilities.

Even more important I could argue is the macro role of federal policy in creating an environment in which innovation can thrive. Our focus on regional innovation hubs reflects the insight that innovation is not a top down process but one that springs from human minds and human interaction. Without the right environment, no regional innovation cluster, no American enterprise, can fully compete in the global marketplace.

Unfortunately, our economy is in danger of losing what has always been our greatest competitive advantage -- our genius for innovation. A recent study ranked the U.S. sixth among the top 40 industrialized nations in innovative competitiveness, but 40th out of 40 -- you heard right -- 40th out of 40 in what's called the rate of change in innovation capacity over the past decade. This ranking, published last year by the Information Technology and Innovation Foundation, measured what countries are doing in higher education, investment and research and development, corporate tax rates and more to become more innovative in the future and folks, the U.S. ranked dead last.

Let me be clear. When it comes to sustaining innovation, I believe the burden remains on enterprising businesses like Lilly. And businesses that doggedly pursue innovation, that address challenges, that overcome obstacles, are the essential element of any regional cluster. Yet, the one thing that industry has a right to ask of public policy is to help preserve the environment in which innovation is possible. We take seriously our role in advocating policies that support medical innovation.

By the way, just last week Lilly bravely leapt into the 21st century with a social media platform we call Lilly Pad -- I don't know if that's proprietary or not but I like it -- featuring laws and Twitter feed that focus on public policy and corporate responsibility. Through these

channels and others, we hope to engage many others, including yourselves, in conversation on innovation and on the issues that surround it.

The fact is that pursuit of innovation in any field is a difficult, high risk venture. If innovation is to take root and grow, it requires a combination of elements that we and others have described as an ecosystem. The first element of this ecosystem in our eyes is an atmosphere in which innovation can thrive. A society that understands and appreciates scientific inquiry and free markets where innovators can expect to be rewarded for the risks that they take and the value that they create. This has always been America's strength. Yet, today you'll hear some people say that we have all the innovation we need or that in this difficult economic climate we just can't afford any more of it. But if you're here in this room today, I believe you know that innovation is not the problem. In fact, it's the solution.

The second element of this ecosystem one might refer to as nutrients. And these come in the form of monetary investments. For investors to take risks associated with innovation, they must have a fair chance of earning a return when they succeed. That requires solid protection of intellectual property, a fair, rigorous, and transparent system of regulation, and a tax structure that provides companies the ability and

incentives to invest in innovation in the first place.

Let me emphasize that last point. We need a system of taxation that provides incentives rather than undermines innovation. Though the U.S. was one of the first countries to offer an R&D tax credit, we have not kept pace with other nations. Other countries and many U.S. states, in fact, are making public investments to attract private capital and using tax policy to encourage local investment in R&D and related job growth. We need to make the federal R&D tax credit permanent as President Obama recently proposed, and raise it to levels that make it globally competitive.

Importantly, in advancing a permanent R&D credit, we oppose so-called international tax revenue raisers that will hurt the U.S. economy and deplete U.S. jobs. And I would caution against characterizing long-standing provisions in the tax code as loopholes as some have called them in an effort to raise revenue. Instead, we encourage addressing any issues associated with international taxation only in the context of broad comprehensive tax reform. Recent international tax revenue raisers further exacerbate the problems of a U.S. corporate tax system (inaudible) that is out of step with the rest of the world.

In fact, we need a business tax system that level the playing

field for America's world-wide companies, which currently face a higher corporate tax rate than their global competitors, and unlike those competitors, must also pay taxes on their foreign earnings. We need a corporate tax system like the rest of the world, one that encourages rather than discourages investments in this country.

The final most important elements of the ecosystem are the seeds of innovation. And that equates to talented people and their ideas. Human talent, with its energy, passion, creativity, and insight, is our most precious resource but one that remains woefully underdeveloped in this country. This is a story for another day. I've got a whole separate talk on this one.

But let me just mention two tasks that I think are essential. First, with our kids falling further behind in international comparisons in education, we've got to get serious once and for all about broad improvement in science and math instruction in our grade schools and our high schools. In a recent speech, the president of the Federal Reserve Bank in Minneapolis suggested that if all current American job openings were filled, the unemployment rate would drop from 9.6 percent to 6.5 percent. The problem, as many of us recognize, is a growing mismatch between available jobs and potential workers. And one reason is that American workers often lack the necessary skills.

Second, we need immigration laws that allow and encourage top scientists from other countries to choose to work and to remain in the United States. This does not entail drastic changes but a sensible increase in thesis for highly skilled immigrants and a shorter, simpler Green Card application process. Together, such policies can unleash America's true capacity for innovation. With the right choices, we can preserve and enhance America's priceless legacy of creativity in life sciences and throughout our economy.

This is the fundamental role that federal policy can play in unleashing the power of regional innovation clusters across this country to sustain an environment where innovation can thrive.

Before I conclude, let me add points specific to innovation in life sciences. Today in my remarks I focused on the benefits of our life sciences hub in Indiana in terms of jobs and economic growth. Indeed, the economic contribution of biopharmaceuticals and other life sciences is vitally important not only to Indiana but the states and communities across this country. But innovation and life sciences also contributes to longer, healthier lives. Medical innovation is the key to meeting the health care needs of a rapidly aging population, improving quality and loan writing costs, and making progress against scourges such as Alzheimer's disease, diabetes, and cancer.

Our life sciences hub in Indiana is not simply about creating jobs for their own sake. The folks in those jobs are literally making life better for people around the world. I began by saying I hoped my story would surprise you, and I hope that it's also been encouraging. The successful effort to build a thriving life sciences hub in Indiana, and in the face of some pretty strong headwinds in our state's economy is recently that our country can overcome the economic headwinds we confront today.

What's more is our experience shows that of you here in Washington don't bear the burden of rebuilding the economy all by yourselves. Regional innovation clusters are taking root across the country, sharing many common elements but building on the unique strengths and resources of individual communities. Driven by a combination of civic engagement and enlightened self-interest but (inaudible) industry, academia, philanthropy, and state and local government, are collaborating to create new enterprises, jobs, and economic growth. Sound federal policy directed towards regional innovation clusters and can help nurture and encourage them as part of a comprehensive economic strategy. But most importantly, Washington must maintain an environment in which these initiatives can thrive and must not adopt policies that could choke off this growth.

The story I shared with you today, the story of our life sciences hub in Indiana, is really the ongoing story of American innovation with sound policy and true collaboration, regional innovation clusters will play an increasingly important role in the next chapter of that story. The heroes, as always, will be embedded and entrepreneurial Americans in every state, enjoying the benefits of freedom and a society that values and supports innovation.

In that next chapter, our nation, as we have throughout history, will once again apply initiative and ingenuity to overcome our challenges and create economic opportunity and growth for all our citizens.

Thank you for inviting me to speak today. (Applause)

MS. WINCE-SMITH: Thank you, John. That was really a tour-de-force. We're very honored you could join us. John has to return and is not going to be able to answer any questions but we are going to continue with our program. I think one of the very interesting things he shared with us in addition to starting locally, going out nationally and globally and returning back is the concept of the (inaudible), the Lilly Pad, and maybe today we'll come up with the RICNET, regional innovation clusters net.

So it's my pleasure to introduce Sarah Rosen-Wartell, the

executive vice president of the Center for American Progress, one of the partners in this conference today. Sarah has played a very important role in launching the Center for American Progress. And as many of you know, she served in the White House in the Clinton Administration after having been assistant secretary of the Department of Housing and Urban Development. But in her role in the White House and as Deputy Assistant to the President for Economic Policy and National Economy Council, she played a very important role in not just interagency policy work but also in looking at many of the emerging financial issues, whether in the banking sector in terms of super protection and she has worked really at the front edge of what was going on in economic policy during that time.

She's a distinguished lawyer by background with a very fine education from Princeton and Yale Law School. And again, as one of the leaders now in country to carry forward our mutual innovation clusters strategy. Sarah, I look forward to hearing your remarks. (Applause)

MS. ROSEN-WARTELL: Good afternoon, everyone. Thank you Deborah so much. And let me also reiterate on behalf of the CAP team what a pleasure it is working with you and the council with (inaudible) offer my thanks to the staff and teams at all those institutions and especially the Brookings team which (inaudible). It's been superb collaboration and we're very grateful to have (inaudible). I also want to

thank the Heinz Endowment that has supported CAP's work in this policy area.

So, so far in this program we've really gotten an on-the-ground perspective on the importance of clusters to job growth and broad-based regional prosperity. There couldn't be a more important time to gain those insights. Policymakers here in Washington, having laid out a more solid economic foundation for recovery over the last 18 months, now we're building upon that work today to create a cohesive strategy for strengthening America's competitiveness and job creation (inaudible). This afternoon we turn directly to the federal role in regional innovation clusters. At CAP, we are mindful that Washington can and should only play an indirect facilitating role in cluster support and creation.

Our latest report, which I hope that you have gotten outside, underscores that approach. Working with the noted regional economist, Maryann Feldman at the University of North Carolina-Chapel Hill, we conducted a survey of firms in one key regional economy -- the communities of Pittsburgh, Youngstown, Akron, and Cleveland, and we asked them about the effectiveness of federal innovation programs, their state and local innovation programs, and how the two dovetailed.

This afternoon's panel's after remarks we'll hear in a minute. We'll explore the findings with senior agency leaders. But let me just point

out the top client to have a little background as you hear from Jason. First, businesses in the regional economy find that the federal programs are too small and too disconnected from each other to be as important a catalyst as they might be. Second, they find that even the most effective state programs don't match up well with the existing federal innovation programs and so also limit the reach and effectiveness of the state efforts. And third, the business leaders say that they would welcome a federal role in supporting with resources the coordination of a bottom-up and self-organized series of clusters.

These are important soundings for us to hear in Washington from businesses who are on the ground trying to make regional clusters work. And in this fiscal environment, there will be greater pressure to streamline, consolidate, and get a higher return from these existing funding streams. And so that's the task of us here this afternoon. We need to demonstrate return on investment in the form of jobs and build a growing national economic strategy from the building blocks of success for regional innovation clusters. Our nation has an impressive capacity for idea-driven entrepreneurship and innovation, creating good jobs directly and indirectly through communities across our country. Hard work and private sector ideas got a lift from limited and targeted government support that has provided a platform, a catalyst, so that those ideas did fuel growth

and carry us out of previous economic downturns. And we can do so today.

And to hear about the Administration's strategy for doing this, I'd like to introduce someone who needs little introduction in this audience, the deputy director of the President's National Economic Council, Jason Furman. Jason has a long history of advising presidents and presidential candidates on tax, budget, entitlements, growth, and virtually the whole panoply of economic issues. His work in the Clinton Administration where I had the pleasure of being literally his next door neighbor and colleague really showed me that he brings to this task two essential skills, and we should all be grateful that the President has them at his side.

The first is analytical rigor and real expertise. And the second is a sharp year for the -- what the public communications process is and for understanding the policy process and how to drive policies through that. The Obama Administration is demonstrating that it understands the challenges and opportunities that our nation faces in creating jobs and is proactively taking on the challenge of job creation and regional innovation as one of the key plays.

Just last month the Administration awarded its first group and I need to say what ERIC means to this audience but Energy Regional

Innovation Cluster grant of $121 billion to a bottom-up, locally organized consortium in Eastern Pennsylvania. This is one of many of the efforts throughout the government that we'll hear about later to do this. So we are very pleased to have someone explain the architecture and the vision behind all of that and have Jason talk about the Administration's thinking about these efforts. Please join me in welcoming Jason Furman.

(Applause)

MR. FURMAN: Thank you, Sarah, for that kind introduction and for the work that Brookings, CAP -- the Council of Competitiveness -- and National Association of Development Organizations for organizing this conference and inviting me to speak here today.

I walked in only halfway through the previous speakers' remarks and was pleasantly surprised that I had actually come to a conference on international tax reform. (Laughter) So I'm happy to speak on that topic for whatever length people are interested in. Looking around the room I'm sensing that one might already have been exhausted by what I've said on this topic.

So let me turn to regional innovation clusters, which are an important part of the President's innovation agenda. I want to start by providing a little bit of a broader context on the President's overall economic agenda and then discuss how RICs fit into them. When the

President took office a year and a half ago, he was immediately faced with two critical challenges. The first was an economy in freefall. The second was a series of structural problems manifested most clearly in the fact that in the preceding 10 years the median family actually saw its income fall. Both of these challenges are something that also show up in the economic geography of the country. States like Florida, Michigan, and California have been epicenters of the downturn containing 60 percent of the metropolitan areas with unemployment rates above 12 percent. But even prior to the downturn, economic success was enormously uneven across the country, and you've seen some local areas, like Yuma, Arizona, with stunningly high unemployment rates of over 28 percent.

In terms of the first challenge that the President had to face, the recession, since January 2009, we've seen an enormous turnaround from the serious chants of a second grade depression to really GDP growth for four straight quarters and job growth for eight straight months. While that's been significant, an enormous amount of work remains given the challenges we still face, given the pace of job growth, and given the fact that overall economic growth has yet to attain the rate that it would need to in order to bring the unemployment rate down.

Ever since he entered office the President has supported a number of initiatives to turn the economy around. Less than a month after

taking office, the President signed the Recovery Act into law. Recent analyses from CEA, CBO, and independent macroeconomic forecasters have found that it was a key in creating millions of jobs and restoring economic growth. That said, the Recovery Act was never, as the Vice President said, intended as a silver bullet. Our approach has been that of a silver buckshot. It's included efforts to restore stability to the financial system, several significant housing programs, and a steady stream of legislative initiatives like the Cash for Clunkers program enacted in the summer of 2009, the Extended Home Ownership Tax Credit, and tax cuts for businesses enacted in the fall of 2009. A tax credit for hiring unemployed workers signed into law in the winter of 2010, Jobs for Teachers signed into law over the summer, and the President is very much looking this fall to sign into law a small business jobs bill.

These initiatives are part of an ongoing process and the President recently complimented them with three new proposals to strengthen the recovery. First, the President announced a new six-year plan for infrastructure that would rebuild and expand America's roads, railways, and runways. This is a plan whose time was due but we designed it differently given the state of the economy, choosing to frontload $50 million in the first year in conjunction with longer term reforms, like an infrastructure bank and high speed (inaudible). The

second new proposal was allowing businesses to expense all their capital investment through the end of 2011. And the third was expanding, simplifying, and making permanent the tax credit to encourage businesses to undertake research and development.

All of these measures were designed in particular to support growth and job creation in the short run while strengthening the economy and growth over the long run. At the same time, the President has been acting on the overall structural challenges that the economy has faced. As I said, we saw the median household income over the last decade fall by 5 percent. Compare that to the 1970s, a period not noted as one of the great economic successes in American history but when median income actually grows by 2 percent. We've seen the cost of college soar, employer health provision erode, and the sustainability of growth threatened by a financial regulatory system that's increasingly outmoded and large budget deficits.

The President has outlined a vision to approach all of these and has undertaken several significant steps, including health reform, financial regulatory reform, a number of important investments in the energy area, education, making college more affordable, and several steps on the deficit, including a three-year freeze of non-security discretionary spending.

Given this overall context for economic policies, I now want to talk about the topic of today's conference and what you're all particularly focused on, which is the importance of RICs themselves. Regional innovation clusters, as everyone in this audience knows, are geographic concentrations of firms and industries that do business with each other and have common needs for talent, technology, and infrastructure. Clusters make full use of a region's unique assets from infrastructure to workforce to available capital, to increase collaboration and create a climate for businesses to grow and thrive. All of the policies that I've talked about from the research and development, tax credit, to reforming the health system, to having a more stable financial system, help at the national level create the type of foundation that you need to have success at the regional level.

But there's a certain logic to looking down on a level from a national to the regional to understand how knowledge sharing between firms increases the productivity of all firms. Historically, successful clusters have formed based on concentrated demand or supply. On the demand side, groupings of key customers can stimulate the development of suppliers and foster competitive development between them. Alternatively, on the supply side the presence of skilled workers, physical infrastructure and land supply has attracted firms and led to cluster

formation. Similarly, the presence of related and supporting industries can assist innovation and reduce transaction costs associated with attracting new firms. Public policy has played an important role by directing the location of infrastructure investment, the level of R&D expenditure, and the ease of public sector procurement.

Given their demonstrated success, many countries around the world have pursued a cluster strategy. You see this notably in countries like Japan and Korea, and you see it in many of the Northern European countries. In most of these cases, the approach has been a top-down one where the government identifies the industry, identifies the firm, identifies the area, and does all of the planning necessary to create that regional innovation cluster. The United States has a very different economic philosophy and one that has made us the most successful and dynamic economy in the world. And for us, the natural way to pursue something like RICs is a more bottom-up approach, one in which the government's role is as a facilitator of market-induced initiatives.

Given the demonstrated success of existing clusters around the clusters, the Obama Administration has joined the dialogue this year by launching several pilot projects which focus on collaboration among existing government agencies' programs to support existing regional clustering efforts across the country. I'm particularly excited about the four

initiatives that we are showcasing at today's conference. The Department of Commerce, EDA, NIH, and the NSF's I6 challenge that I think you heard about this morning; the SBA's regional clusters initiative that Karen Mills will talk about after this; the Department of Agriculture's regional business opportunity grants; great region awards which I think are particularly important because they show that clusters aren't just about metropolitan areas, they're also about rural areas, and the Energy Reach Innovation Cluster or ERICs which have been getting off to a successful start.

I'd also like to take the opportunity to highlight the creation of the task force for the advancement of regional innovation clusters. Born out of the successful interagency effort that launched the ERIC, the TARIC as it is now, is the collaboration between six government agencies and departments. It's one that we at the White House have taken a particular interest in helping it come together, push it forward, and attract attention from the President on down. This organization will work on coordinating and leveraging federal resources to support the growth of existing RICs and a particular focus on business, economic, and workforce development.

I wanted to -- my own training is in economics, so I wanted to just take a brief moment to talk about a little bit of the economic

evidence and motivation for the Administration's work on RICs and the importance of what you all know from your own experiences and work around the country isn't working. Part of it is that we face enormous fiscal constraints in our budget. As I said, the President is committed to a three-year freeze in non-security discretionary spending. And that means that we have to spend our resources much more wisely, much more responsibly, in a way that demands results that we know works, that leverages private sector resources, and importantly, one of the innovations we're bringing to this is better coordinated.

We know the cluster strategy is one that works for the economy. You see it in well known places, like Silicon Valley and the Research Triangle, and you see it in lesser known places, like Dayton's Tech Town, Tucson's Arizona Bioscience Park, and the Middle Georgia Economic Alliance. Recent economic research confirms this success. Clusters promote both productivity and employment. Although they differ in terms of geography, industry and size, they have proven to support economic development. Rather than merely attracting growth and investment from neighboring areas in a zero sum way, clusters have time after time proven to be positive, creating value for the area they're in and spillovers that benefit the nation as a whole.

A recent study by Harvard's Business School's Michael

Porter demonstrates the economic benefits of clusters. He finds that industries participating in stronger clusters register higher employment growth, as well as higher growth of wages, number of establishments, and patenting. Importantly, Porter and his colleagues find evidence that new industries emerge when there is a strong cluster environment. Overall, Porter's findings highlight the important role of cluster-based conglomeration in regional performance. There has been, as I said, a tradition in economics of skepticism in the sense that there might be something zero sum and the absence of a compelling demonstration of the types of spillover that I think we all believe in. Some recent rigor evidence has been more rigorous and scientifically demonstrated the benefits of clusters.

Michael Greenstone, a Brookings senior fellow and his colleague, Enrico Moretti at UC-Berkeley, take this critique on directly and look at the incremental impact of million dollar or large clans clustering together. By comparing sites that got these plans to the ones that almost got them that were considered similar in almost every other respect, they can isolate the impact of successful clusters and firm location decisions, finding increased productivity by 12 percent and employment by 9 percent. We've also learned from practice that for the more than 150 clusters around the country that they provide tangible results. Not just higher

wages and greater productivity, but concentrated knowledge sharing among companies in the same industry, resulting in increased spinoffs and new commercial activity.

For example, the Clean Tech San Diego cluster initiative that was launched in 2007 focuses on energy efficiency, renewable energy, transportation, and water management. It has generated substantial start-up activity and San Diego now boasts more than 650 clean tech companies supported by 6 world-class universities and a network of investors. That benefits lead to increased regional prosperity, which in turn is a foundation of national economic prosperity. Across industries from the ERIC to the clusters forming in the agricultural space, more Americans will be working, more businesses will be investing, and more entrepreneurs will be starting companies. To build broad paced economic growth, the government needs to lay the foundation for these efforts, particularly in a country where we have more than 10 cities with unemployment rates above 15 percent.

The success of regional innovation clusters initiated in the regions themselves in industries as diverse as biopharmaceuticals, information technology, medical devices, and aviation is a true testament to American entrepreneurialism. In clusters such as these and those that are now forming in the energy, clean water, and agriculture space, the

federal government can be an essential contributor by building upon the success of existing clusters. By combining the stewardship of federal research dollars with targeted provisioning of policy and programmatic expertise and the ability to convene the appropriate stakeholders, the government can amplify the impact of each dollar spent on the initiative.

In conclusion, the President understands a lot of the constraints that we face. Financial crises have particularly severe and long-lasting impacts on the economy. The medium- and long-term budget deficits place a constraint on what it is the government can do and on what the government ought to do. At the same time, he also notices that Americans have an unparalleled capacity to come up with innovative and entrepreneurial solutions. RICs are one example of this innovation. The federal government's role is modest but important. Helping some of the foundations that entrepreneurs, workers, businesses, and regions can build upon. We're starting to do a better job aligning federal resources designed to promote regional development, and in particular, coordinating across different cabinet agencies a role that the White House has been pleased to help with. By encouraging projects driven by strong performance targets, the federal government can ensure clusters deliver the maximum benefits in terms of increased employment and income growth. We all need to work together to make sure we're working smarter

and using federal dollars more effectively.

RICs are only a small part of the President's overall economic agenda when compared to such major policies as health reform and financial reform, but they are also emblematic of the better approach to government and management more broadly -- how we can use our resources more effectively to promote innovation and growth by the private sector.

I thank you for the attention you are getting for this important and often unheralded initiative, as well as the ideas you're helping to develop with us to drive the process forward. So thank you for all of that. And I don't know if you're planning to do questions. (Applause)

MS. WINCE-SMITH: Okay. So Jason has been gracious enough to agree to take a few questions. So let me see if anyone wants to start. And if you do, if you raise your hand we'll call on you and we're going to be bringing micas around the room to people. Do we have one over there? Please, if you would when you are called upon, if you would identify yourself and any affiliation. Thank you.

MR. REED: Hi, thank you. My name is Randy Reed and I'm with the Capital Information Institute. One of the problems that we've seen is that the amount of money available for equity investment has plunged. Just a few years ago it was $87 million available -- that's venture

capital (inaudible) investment. The first quarter this year it's now only $3 billion. And there's a systemic reason for that. It's not just because of the recession. It's not because of tax policies.

So we can develop all these regional clusters that we want, but if these companies don't have the money that they need to (inaudible), they're just not going to go anywhere. What is the White House doing to address this situation? Thank you.

MR. FURMAN: Thanks. I think that's a very good question. One part of the answer is what we can do to restore the flow of credit to businesses, and particularly small businesses. And I see Carrie Mills, the Small Business administrator just came in who works day in and day out on that question, and she's going to have a lot more tools to do that once later today the House passes the Small Business bill, something that has unforgivably taken many months longer than it should have taken given a series of procedural obstacles that were thrown up against it. And also give the Treasury tools to work together with community banks, states and regions, to expand lending. One of the things is a state-based initiative to work with types of credit programs that places like Michigan have that have been important in these types of regional efforts.

But second and more broadly, we talked about helping firms enter the global economy. And that's a really important part of the answer

to this. There's only, you know, a certain amount of growth you can have in a region; only a certain amount you can have even in the United States. The majority of the customers live outside of the borders of the United States. The President has a National Export initiative and it's designed with the goal of doubling exports over the next five years. An important part of that goal is going to be achieved by small businesses; it's going to be achieved by -- I don't remember the percentage but the majority of companies in this country that do export, only export to one other country. And so you work with them. They're already exporting. They already know how to navigate the international landscape so that they can export to two countries, three countries, four countries, and expand beyond that I think is another important step that we can take.

MS. WINCE-SMITH: Okay. Do we have time for one more? All right. Great. Let me ask everyone to please join me in thanking Jason. (Applause)

All right. So I've been asked while I just (inaudible) introduction, if the panelists on the program would join me up on the stage now please for the next panel.

I'm going to introduce Kate Gordon, who will be moderating this panel, and then we will -- she'll introduce the rest of the folks. Kate is the vice president for Energy Policy at the Center for American Progress.

Her work lies at the intersection of clean energy, manufacturing, and economic development policy. She and our colleague, Ed Paisley, worked with Professor Feldman in the paper that I mentioned earlier. Before Kate joined us at the Center, she was co-director of the National Apollo Alliance and she worked at the Center on Wisconsin Strategies, well known to people involved in the RICs business, our friends at COWS. Kate has really been a tremendous leader at CAP and I'm going to turn it over to her.

MS. GORDON: So, last night several of us had a dinner where we were there to listen to the (inaudible), Michael Porter. And Michael was supposed to be there in person, and the President was flying out of New York at the same time and closed the air space, so Michael couldn't get there, so we heard him by video conference.

And I feel like, in a way, that's sort of a microcosm of the Federal role in cluster development for the last few decades. The Federal government puts up a barrier to cluster development, the clusters innovates, uses technology, it overcomes the barrier. Manages to do what they're trying to do (inaudible).

I think that's unfortunately been a lot of our folks' experience at the state and local level, regional level.

And what we're here today to talk about in the panel is how

to change that, and what we're doing to change that.

You know, this Administration, I think, has really put out there a stated intention to change the role of the Federal government in Cluster Innovation and Cluster Development. I think that what we've really seen are some very innovative programs out there to make cluster development an intentional part of the Federal strategy. And that isn't what we've seen historically (inaudible) real, you know, (inaudible) up to this Administration.

This panel today is made up of those who are really leading that effort in the Federal government. And what we're going to do is really focus, on this panel, on what they're doing in their agencies, but also in terms of bigger questions that have come up over the course of the day -- how do we overcome some of the barriers that we were seeing that, you know, Sarah pointed out in the sponsored survey we just did in the Pittsburgh, Cleveland, Akron and Youngstown area -- the barriers of silos, the barriers of small programs that are hard to aggregate into something that works for clusters. The barriers of not necessarily working -- state and Federal clusters working -- development working well together.

So we're going to dig in on some of those issues today. And I think it will be a really exciting -- you know, I'm honored to be up here with you folks.

So, quick introductions, and then we will dive in.

I first wanted to introduce Kristina Johnson, who is Undersecretary of Energy. Was a provost of Johns Hopkins -- and this is important because we've talked a lot today about academia's role in cluster development. Also technology's role. Kristina holds 45 U.S. patents, I'm told, all on her own. So -- represents both of those. And I'm hoping she'll talk a bit more about the (inaudible) program, which DOE was really central in.

Next down we have Karen Mills, Administrator of the SBA. Many of you know her from, among other things, one of the seminal papers on the Federal role in cluster development written with Brookings a few years ago.

Kristina (sic) also was involved, I know, personally in building a cluster around boat-building and (inaudible) factory in Maine -- so knows about this Federal role and local. And I hope she's going to talk a bit more about the regional innovation economy clusters that we've seen come out of the SBA recently.

Third down is John Fernandes, who is the Assistant Secretary of Commerce for Economic Development. And John was the Mayor of Bloomington, Indiana -- I guess, as many of you know -- so also has that local experience, and has done a lot of this work on the ground,

and kind of seized the Federal-local connection, I think, really strongly -- doing a lot of work at Commerce around cluster development and really trying to think of this as bigger than just one program, or bigger than just one competition.

And then, finally, at the end, Victor Vasquez, Deputy Undersecretary, USDA, talking -- working on something I think a lot of people want to hear more about, which is rural clusters, how do we expand the role of clusters to rural areas?

Victor has experience also on the ground -- as do a lot of people in this Administration -- working in Washington state with Boeing on economic development there as the Director of Economic Development for the State. And particular experience at USDA starting a number of programs that we'll hear more about in a minute.

So I wanted each of you to take a second to talk about what you're doing at your agency to break down some of these barriers and start addressing some of the concerns historically that regions have had about the Federal role, and maybe highlight one or two programs that you're particularly focusing on.

So -- go ahead, (inaudible).

MS. JOHNSON: Thank you very much.

Well, first of all, it's a pleasure to be here and have the

opportunity to talk about this breaking down the silos. So I want to say first of all that one of the many exciting things about being part of the Obama Administration is the ease at which you can work across the agencies.

And so I started out, when I first came to the Administration, had a meeting with Karen Mills, here, who talked about her boat-building and other cluster formation in Maine. And I was really taken by that. And the very next day, Ginger Lew, in the White House, convened a meeting of all different agencies, at which I had the chance to meet with ED and others, to think about how we could build clusters around certain capabilities and areas.

And so one of the things that was said, as well, we had this hub that our Secretary has put forward as a vision for how we might build on what the National Science Foundation did in the Engineering Research Center -- I see Chris Gabriel's here with my ERC Director of Oversight, the person, when I was running one -- to say what can we do so that the whole is greater than the sum of the parts?

So we said, well, we're going to do a buildings (inaudible). And someone else said, "Well, we can do education around that with the community colleges." "And we can look at small business and see how we could support the small business entrepreneurs."

And it grew into a 7-interagency activity -- which was announced just a few weeks ago, $122 million to support a regional innovation cluster of 200 buildings in the old Navy Yard in Philadelphia.

So this is very exciting, because you can actually start and model a grid, a micro-grid that's actually off-grid -- which is of interest to DOD, it's of interest to a lot of emerging economies throughout the world -- and have a way to really focus on making the buildings within that a Regional Innovation Cluster, zero net energy, low carbon emitting buildings.

So we couldn't be happier to be part of this seven-agency activity.

One other thing I'll mention right now -- and then I'll turn it over to my colleagues -- is that -- and we also announced this last week -- $5.3 million on ecosystem in clean energy innovation, awarded to five universities. So, to give these universities the opportunity to maximize the technology transfer from the university into the local communities. They're geographically spread. They're the University of San Diego, University of Central Florida, they're Illinois IIT and Cambridge. So we're just very excited about being a part of this opportunity (inaudible).

MS. MILLS: Well, thank you very much, Kate.

And I am particularly excited to be here. Some of you have

said, “What’s it like?” And I said, “It’s like falling through the looking glass.” And you can’t really understand, you know, “Is this reality?” Or is this some dream I conjured up about how we would actually be sitting here today implementing these clusters?

I want to very much thank Brookings, who was my real early partner and inspiration when we started forming these clusters in Maine as the foundation of the Economic Development Strategy -- Betsy Biemann is here from that -- and continued the cluster work that we actually put into the budget of the State of Maine for the boatbuilders. By the way, there is no group less likely to cluster than the independent Maine boatbuilders. (Laughter)

But the value of clustering was so great that it pulled them together.

So that was the foundation stone, really, for my involvement in the public sector and in public policy.

We did -- my co-writers here, Liz Reynolds -- we did write a paper on the Federal role, and we said that EDA should lead in some of this. And I’m very pleased to see John providing a lot of that leadership. I didn’t know at the time that I would be involved at the SBA, but we have also, I think, provided some leadership in this area.

We now have, I think, the seminal paper, though, on clusters

from Mark Muro and Bruce Katz, and I was reading that. And this is -- this is really sort of the state of the art. And Andy Reamer, my other colleague.

So it's fabulous to be here. I really thank you all.

We talk a lot about small businesses being the economic driver, the economic engine. And Jason Furman was talking about how you incorporate that in public policy. This notion of clusters is a very interesting component of that. And it's really come up organically.

But we at the SBA have been able to actually run a pilot set of clustering efforts over the last 18 months. And we put it in our budget, Congress approved it, and we have just actually, in July, turned around a very quick request for proposals. We were surprised, actually, at the response. We had 173 fabulous applicants. And that doesn't surprise anybody in this room, because you all know what's bubbling out there.

But I think it surprised a lot of folks in Washington, as those terrific applications for our program and for others have come forward. So that was a fabulous thing.

Monday, we announced these awards. So we announced 10 cluster awards, up to $600,000 for each award. And we learned from, I think, the work in Mark and Bruce's paper, on how do you think about these clusters? We looked at ones that already were clusters, that

already were growing -- and you've heard a lot about this morning. You don't try to sort of create them de nova, "We'll be biotech," you know. Everybody was going to be a biotech and a green cluster.

Well, we've evolved. Now we know that they kind of come bottoms-up, that they have public sector and private sector -- very important, private sector and small business involvement. And clusters are a very good way for small businesses to gain traction and economies of scale. So it helps small businesses have more power, and act like bigger businesses. So it's a very good match with things we care about at the SBA.

We asked a lot of touch questions in our application. We asked, "What's the potential for commercialization?" "How are you going to measure job creation?" -- really focused on the outcomes measures. "How does this cluster fill an existing gap in the supply chain?" "How are small businesses going to benefit from this funding?" That's what we're here for.

"How will we attract more small businesses to the cluster?" "And, overall, how will the region grow and thrive because of this cluster's existence and continued growth?

So I have to just ask my cluster team to stand -- Christine Koronides is here, and Sean Greene who runs our Innovation, and

Meaghan Burdick -- because you need to know who they are. We are going to continue this activity. If you want to get involved with the SBA around this activity, or you have continued input, we would very much -- I want to thank them for taking the lead on this, and say this is a pilot. We plan to expand, continue and grow this effort.

We also have a few of the winners here, and I do want them to also stand, because we have -- you're going to hear agriculture, very much can be part of clusters, and we have an agricultural innovation cluster from Monterrey, California. I don't know where you are -- stand up. Yes.

And NorTech, from northeast Ohio, which is flexible electronics -- very interesting group. Upper Michigan, green aviation technology one, as well. And we have some defense contracting. We had a special category for people who are going to help in defense-oriented clusters. Because our Department of Defense very, very much wants the innovation from these new small companies.

So the Defense Alliance of Minnesota, involving the Minnesota, Wisconsin and the Dakotas, was a winner, as was a cyber security cluster based in San Diego.

So thank you all. Those are fabulous. And thanks to the (inaudible). (Applause)

We are, as Kristina said, involved in a very important interagency effort that Ginger Lew has played a real leadership role in. So we are a supporting agency in the Department of Energy-led large innovation cluster around green building. And we will do that through our Small Business Development Centers and through other interactions.

But we are very much interested in cross-agency activity with the Department of Commerce, in EDA, with clusters that are forming in agriculture, because we know that these activities really are interdisciplinary, interagency activities, and that our small businesses will play an important role in clusters that are rural, clusters that are inner-city, clusters that are defense related, that are high tech, that are low-tech. This is a very, very broad strategy that we think benefits our small businesses all around the country.

As you know, this is a big week for small businesses. We announced these cluster grants. But right now, as we speak, the House is voting on the Small Business Jobs Bill. And if that passes the house, and the President signs it as he plans to, as soon as possible we are going to be able to also help on some of the things that were raised this morning -- increased access to capital, more help and counseling, more support for exports. And we know that those tools are going to be critical for small businesses to grow and prosper.

Government doesn't create jobs, small businesses create the jobs. Our job is to give them the tools they need to grow and compete going forward.

Thanks. (Applause)

MS. GORDON: Thanks, Karen.

Go ahead, John.

MR. FERNANDEZ: Thanks, Kate.

I want to first of all thank the wonderful co-hosts who put this conference together today. It's quite the gathering here of colleagues from not just the Federal system but, I think, our partners that we work with throughout the country.

I know Secretary Locke was here earlier. He basically announced all the great projects we've been involved with at EDA through the I-6 Challenge, the Cluster Mapping Initiative with Michael Porter's group, ICIC -- it's a long list. I guess I really don't have to do a whole lot here today. Just say, yeah, go look at Secretary Locke's comments. But he's been a strong supporter of what we're trying to do.

But I do want to congratulate many of the I6 winners, the handful of them that are here today, and all the other (inaudible) -- everyone else's programs, as well.

I want to also just make a note -- and others have said it

today -- but I was particularly pleased to see that as conference was put together, that we had a significant panel participation as well as the keynote from one of our friends in Louisiana -- but from the private sector. We've all been to many of these conferences, we talk about regional innovation, we talk about economic development, but we rarely hear from the employers, and the folks who are actually helping us create these jobs and really taking the lead in creating these jobs, we're supposed to be helping them.

So it's nice to see that kind of level of private sector participation. That will be critical to whether or not you're to have an effective regional innovation cluster.

I want to congratulate Mark and Bruce for their new paper. I hope we can get into some conversations about that, (inaudible) questions. I had to laugh at the title a little bit, about a new cluster moment. You know, I'm pretty new to Washington, and I'm from the heartland that John was talking about -- and I tell you, where I'm from, we think there's "new cluster moments" in Washington all the time -- (Laughter) -- there's like a verb right after it.

But, seriously, I think it's a wonderful paper, and I look forward to getting into it, because I think there are some really good insights about -- now that we're all really focused on this, let's make sure

there's, you know, mistakes that we don't make.

The other paper, though, that was put together by Marianne Horn, I want to say how much I really appreciate that one, too.

I was born in Canton, Ohio. I grew up in Kokomo, Indiana. My dad's a retired autoworker. I had, my first term as mayor, very early in my administration, a local plant close and we lost 1,200 jobs as the assembly plant moved out of Indiana to Mexico.

And I think that the context of all the discussions we have about regional innovation clusters and all this, sometimes we forget about the parts of the country where there's large populations who aren't nearly as excited as we are when we start talking about innovation-led economic development. In fact, they're fearful.

And I think one of the greatest challenges we have as we have these conversations, and as we roll out these policies, is how do we translate all of this into a language, into a vision, a road map for America that a broader swath of our people see their future in.

Everybody needs to have a stake in this innovation-led development initiative. And we need them to participate in the process, to support it, and certainly to benefit from it.

So seeing that kind of paper, that key study that's looking at, you know, some of these "heartland cities," if you will, I think it's really

important and it should be instructive to have them talk about these policies.

The downside is that from the experience we've had, you know, at home, and certainly in my new role, I've also seen that having this kind of regional innovation cluster strategy, a private-public partnership, it can work. And when it's done right, it leads so well into a much broader, I guess, demographic of benefits. We always talk about, you know, if you do it right, the entire supply chain, we really are talking about, you know, from GEDs to PhDs, you're talking about a really thriving middle class. And I believe it's a long overdue framework for how we organize economic development strategies.

The local governments, the private sector, state governments -- we've been at this for a long time. And it's good to see the kind of momentum. And I think it's a real testament to President Obama and his team that they have seen this and understand it. And now you see all the discussions that are going on across agencies that it's obviously a smart way to go forward.

EDA's had a long history of working in this area. I guess the difference now might be that not only is it just one area of discussion that we have around economic development strategy, it's become the central organizing framework for all the work we're doing.

And we've tried to package this up according to a broader agenda of a jobs and innovation partnership agenda, where a regional innovation strategy becomes the blueprint, if you will, for how that region can become a very competitive region. And looking at the entire ecosystem, and building it up to support the emerging and existing and mature clusters that are in the area, because we know we can accelerate growth and sustainable economic development that way.

I'm excited about where we're at because there is a great opportunity here to change the paradigm, to really talk about bottom-up. I was actually listening to Tom Brokaw on the way here today, and he was at the Global -- that Clinton Global Initiative. And he -- I was laughing at that, initially because he was talking about changing the paradigm on economic development. He was talking about bottom-up. He was talking about a whole new era of private-public partnerships. And I'm sitting there going, "Yeah. That's what we're talking about."

And so I'm hoping that there is real momentum here that we can build on. We have lessons learned from some of our (inaudible) centers, interagency work. You know, this ought to be a good conversation today, and I look forward to continuing it after today.

Thank you. (Applause)

MS. GORDON: Victor?

MR. VASQUEZ: Good afternoon.

First I want to say that I'm humbled, and I feel proud to be here representing the USDA in rural America, and the fact that this dialogue and this session is an opportunity to highlight and reinforce what the private sector is already doing, what state and local governments in different parts of the country have done.

I guess what I want to emphasize is that success to all of this really is going to be built on relationships -- industry and business and the relationships they have, local and state government and federal government, and the communities themselves.

I'd like to highlight some of the partnerships and collaboration that are taking place within the framework of what we run within our federal department at this point in time, and the fact that we're using that tool in order to promote the notion of how we connect locally with states and local government and the private sector around regional innovation.

USDA, believe it or not, doesn't do just agriculture. We have -- I represent Rural Development, which is a huge economic development arm for rural America. In a typical year we administer, through Rural Development, approximately $20 billion that feed into rural housing -- which includes a home loan program, which includes grants and rental

assistance. We have a rural business service that supports business and industry loan programs, a cooperative service program. And we have a rural utility service that originally brought the telephone and electricity to all of rural America. Now we're engaged in expanding broadband to rural America, but we also support water, wastewater and infrastructure.

Why is that important? Because infrastructure is critical to industry cluster activity. Infrastructure, community capacity, social capacity, the higher ed capacity that we can support through our community facilities program -- all of those things are important. And those efforts are carried out through a network of state offices that we have to cover virtually every town you have across rural America.

We have state directors in every state that are political appointees. So as you work on this issue, and you begin to look at how we collaborate, look to those state leaders. And I think we have a few of these -- would you mind standing up? I want them to see at least some of the states that are here.

These state directors lead our economic development activities, our economic activities in those states. And they are political appointees.

Thank you very much.

And so you get a sense of what we're doing.

So on the policy side, what are we doing? We're working for a Secretary that basically led the economic activity in Iowa through an economic transformation. He came to USDA with a notion of looking at regional innovation, knowing and understanding that it worked, because he led it through a state.

And he has placed a charge on us -- not just Rural Development but all our seven agencies, every mission area -- to begin to look at all our regulations, policies, our resources, and how do we look at those in a way that we don't carry on what we've done in the past. This is my second time around at USDA, and historically, we had led regional efforts, but our tendency was to lead this efforts through programs with an expectation that communities respond to those programs. And that no longer works.

We need to look at -- and our goal through the Rural Business Opportunity Grants and Regional Innovation is to build a bottom-up community development approach that leads to economic development, that involves the power of the people, the power of the strategy and the decision.

And we have seen this in the past, through smaller efforts, and we believe that through the added resources that we're putting in research -- which is something that we have recognized that we need to

do, first and foremost, to make sure that we know and understand when we go into an area what it is what we're looking at, what that economic activity is. And we have an expectation that our communities are going to be better served if we provide that research and that data to them as they go through the visioning process and the planning process.

So what we're doing is we're looking at all our regs within Rural Development over this next year. We're looking at setting aside, at least through 20 of our programs, 5 percent of our resources, which is going to be the equivalent of about $127 million, focused strictly on regional innovation and how we create flexible and adaptable programs to support those things that are focused on regional economy, basically industry clusters or emerging sectors.

So we've been very active at this for some time. We've had some experience in the past but we're taking it a step further. We're adding the research, we're adding the focus on industry cluster activity. But we're also making sure that we reinforce the opportunity and the ability for the people that make that self-defined decision of what that regional innovation strategy is going to be. Because, ultimately, it won't be sustainable if it's from the government down. It has to be from the community up.

Thank you.

MS. GORDON: That's great. Thank you. (Applause)

Now, following a bit on what you just said -- and what all of you said -- we're at an interesting moment. You know, we have a real, really constrained Federal budget at the same time that we have a critical need to do economic development, and to see regions of the country really get lifted up, and to start exporting, and be stronger.

How are you thinking about -- what creative mechanisms do you have at your disposal at this moment, where the Federal coffers are so constrained, but you have existing programs, you have some existing authorities -- what kind of innovative strategies are you doing? The 5 percent you just brought up is a really interesting one, setting aside that 5 percent to say, okay, we're going to put this into innovation.

What other things are you doing to kind of start addressing some of the issues that folks really have brought up all day -- the lack of access to capital, the lack of good data, the lack of good connections -- in this difficult moment?

And you can jump in, anyone can jump in. You don't have to go in order.

MR. VASQUEZ: Well, I'll use a water system as an example. If we're going to take to heart that we're going to look at everything from a regional perspective, and we're working with a

community of, you know, let's say 10,000, and you want to put in a water system, we have to ask ourselves is this water system something that, if we look to the adjoining communities, something that could be regional in nature? Is there a way to capture the proximity to the other smaller towns and create a regional water system, versus a water system for that individual community?

And if it is, then we can leverage the resources of those adjoining communities, reduce our resource requirement, but then also begin to look at what that regional can do with infrastructure that leads to creating -- and what I've heard here today -- the kind of environment that might be able to attract expansion of other opportunity.

MS. GORDON: Other examples?

MS. JOHNSON: You know, I think one of the things we've looked at in the agencies where we have overlapping needs that we can develop -- so, just an example -- use the buying power of the government to buy power. It's one of the things that we're doing with USDA in DOE is looking at our bio-refineries and seeing where there is investments in energy has been made over the years that have built up pilot plants.

Now, taking it to the next level, they're not starting from scratch -- which is something that in the Muro-Katz paper was also pointed out -- it starts from a platform and foundation of previous

investments to build capacity and build capability. So I think that's one area we've been very active in.

Another area -- you know, Karen Mills might want to comment on -- but that's a small business investment corporation, the loan program. So, once again, you can have loans in any area of your authority, but you chose to focus it in an area where there's a quite lot of momentum and innovation.

MS. MILLS: What we found in the paper that Andy, Liz and I wrote, we actually went through all of the Federal spending and identified, at that time, $77 billion in spending that went into the regions -- through all kinds of mechanisms.

And if you -- the problem was, it comes down -- as we all know -- in silos. And they aren't linked, leveraged and aligned. And that was, you know, several years ago.

Well, we are privileged, I think, to operate in an environment where, I will say, the President has really set the ground rules from the beginning, which is: No silos. Everybody works as a team.

So when you get that kind of culture coming from the White House, the convening nature of it, it didn't take long for us to realize that we had opportunities to work together in ways that were -- that we were able to do relatively simply with existing programs that just got

coordinated.

And this is what we did in the E-RIC, the Energy Regional Innovation thing that Kristina talked about --

MS. JOHNSON: Cluster.

MS. MILLS: -- Cluster -- one of those. And we are continuing to do that in a very robust way.

Because the interesting thing is that clusters actually don't take huge amounts of money to make a difference. That the coordinating aspects of the money is actually fairly small. So that we can come up with $200,000 in the Small Business Development Center in a region where something else is going on, that will be enough to convene the business around, let's say, greater export activity.

We have lots of these assets, it's the link, leverage and align that we're now focusing.

MS. GORDON: Great.

MR. FERNANDEZ: The only thing I would add -- because I think everyone else has spoken quite well to the point -- is that I would just look at it from this perspective.

You know, you mentioned the kind of fiscal realities. Well, to me, you know, that just drives home the point of, well, not necessarily (inaudible) but just practical.

If a practical need is more smartly looked at how we align Federal investments from multiple agencies to get maximum return on investment, how we vertically align, you know, local, state and Federal, private sector investment to get maximum return on investment.

So if there was ever a moment where we needed to be smarter and more effective with (inaudible) investment, now's the time. And just certainly from, you know, our perspective, it creates the right kind of framework to take that whole linking and leveraging to a new level.

And, you know, the cooperative efforts between agencies is certainly a first (inaudible). There's probably some other ways that we could do this more systematically to ensure we have that kind of leverage.

And as Karen said, I mean it's not always about the money. And as a head of an agency whose entire budget is a -- compared to my colleagues here -- is, you know, it's a rounding error. (Laughter) I can, you know, speak volumes to the fact that it's not always about how big the check is, it's about that convening, that facilitating, that catalyst.

I mean, when I was a mayor, we did the Life Sciences Partnership Cluster, and it was a matter of just getting people in the room who were the private sector leadership, the university leadership and saying, "Look, here's the evidence, in terms of the strength of what this economy means, what this industry means to our economy. Here's the

opportunities. We'll convene. We'll seed. We'll put in some soft infrastructure money to get it up and running. You guys go run it, and we just get out of the way." And that's the way it works.

So it's not always about how much money it is, but it's about getting the data right, and getting that convening function going.

MS. GORDON: Do you want to jump in?

MS. JOHNSON: I just wanted to --

MR. FERNANDEZ: She wanted to validate that I really am a (inaudible).

MS. GORDON: Yes, you're running near to her. Exactly.

MS. JOHNSON: You reminded me, during our E-RIC collaboration -- I was just kidding -- I think what John said is about the convening power, and also linking into what Karen said, you know, I think it's about connecting and convening and getting people to commit.

So I tell a little story. All of you -- you know, I'm sure you stay at hotels a lot. So I stayed at this one hotel, and it just drove me crazy, all the lights were on in the halls. So I went through all the halls on all the floors and counted all the lights that were on, and I did a calculation how many hours a day. Then I went on the website and calculated how many hotels throughout the country, then throughout the world. Then I did a bottom line. Then I looked up their earnings per share, and I figured out

how much they could save in bottom line.

Then I got out my pen and I started to write the CEO.

MS. GORDON: That's a very DOE thing to do. (Laughter)

MS. JOHNSON: Then right as I'm finishing this letter and all these calculations, my chief of staff comes in and says, "What are you doing?" And I said, I'm writing the CEO. He's got to know how much money it takes. He says, "No, no. You're the Undersecretary. You do not write these kinds of letters." Oh, no.

But what we can do is we can convene CEOs of all the hotels together. And by gathering that information and communicating what the savings is, we can start a movement towards these energy efficiencies in these sectors. So we're going to start trying to have these convenings and these workshops, where we can use our leveraging power to link people together and get them aligned around energy efficiency.

So I think that's one of the things that we need to do is use more of that kind of power.

MS. GORDON: That's a great example.

And some of you talked about data. And there are not a lot of rooms in the world where you can talk about data and people get excited, but this is one of them. So we'll talk about it for a minute.

The Cluster Mapping Project that you guys are doing, you know, really interesting look at sort of where it is happening around the country, what do they look like.

How are you planning to use it? What's the next step after the project is done? And what are the other -- how are you get the other agencies?

MR. FERNANDEZ: That's the most important question. Because, I mean, my staff is here. They'll tell me if -- you know, people want to do research all the time. I'm like, well, just because it's interesting, or is it because it's useful? And if we're going to spend a million, a million-five of the taxpayers money, it better be useful.

And I think that it's useful. And the plan here with the Mapping, what's going to happen is that, certainly it's to identify where different kinds of clusters are emerging or exist. But more importantly, to look for sweet spots, in terms of where assets can be brought into the mix to accelerate the development of those clusters.

So we'll certainly use it from an internal perspective.

Like I said -- you know, I said earlier that we're using the (inaudible) clusters as a central framework for our decision-making. And so as people under our grantees -- many of them are here -- are submitting applications, and they want to say, "Well, we want you to invest

in this particular infrastructure initiative," or revolving loan fund, or whatever it might be, to support the emerging -- you know, we'll pick a fun one -- wine cluster. You know, it would be nice to actually help them know that that really does exist as a comparative advantage, that there really is a cluster, not just a couple of, you know, boutique-y wine, or vineyard, but to really dig into the details. And that helps us sift through the competition, if you will, to make sure it's really valid.

So we'll use it from a -- you know, from an evaluation tool, or hopefully our local economic development (inaudible) will use it from an information tool, sort of how they can build up their economies in a more accelerated way.

And there will be other elements to it in terms of asset mapping, and how we can help fill in the white spaces across the map.

MS. GORDON: And are the rest of you going to use it? Victor, you were --

MR. VASQUEZ: Yes. I just want to add that that is very, very valuable, critical to what we do.

I would just suggest that as we do this research that we look at the second and third tier. Typically, that's where you're going to see rural America, and that's where you're going to see us engaged.

And so look at where that is. We're going to do that for

Economic Research Service, and make sure that information's available to our communities.

In addition to that, you know, when you look at a cluster, think about where those resources come from, and what we need to do in order to protect that environment to support that resource base and the communities and the people that feed into that.

So second, third tier, and the resource base.

MS. MILLS: The reason I think that it's so valuable to have this data -- and Christian Ketels can talk about Europe having it -- is that people really need a road map for how we're going to create jobs and prosperity and compete going forward.

And we all know that, you know, a large number of the jobs are going to be created by small businesses, but not just the small businesses on main street. It's going to be the high-growth, high-impact small businesses.

And there's a lot of ways we can invest in these entrepreneurs in these economies. But if you are looking at a region that's transforming, it is daunting to know how that's going to come about.

And this is foundational knowledge. When you're in Maine and you realize that textiles, shoes and pulp are going or gone, what's the next economy going to be? And now if we say they're boat-building,

they're food -- because potatoes and blueberries and lobster -- and you pick two or three of these, that pretty much set the whole regional government and state government in a place where they could describe a potential road map to prosperity.

And then other bottoms-up investments can once again link, leverage and align. The universities can have a set of places to focus.

And what I've seen from a lot of you is that at the beginning, it was really what we called the flavor of the month, which was usually green energy or biotech. And now it's hundreds and hundreds of other fabulous, you know -- GIS technology, the cyber security -- all kinds of innovations in agriculture, in every sector, in every kind of economy, ideas driven by innovation -- real, exciting innovation -- are becoming foundation stones for these clusters. And that's where the jobs are going to come from.

MS. JOHNSON: If I can just maybe add a -- thank you -- an academic perspective, going back to the National Science Foundation Engineering Research Center that we had in the '80s in Colorado -- so, you know, I think that if had these tools back then, I would certainly be able to look at the regional topography and say, "Okay, where are the expertise?" And, like, it wasn't a large state, so I know it was in optical disk storage.

Well, we had a little downturn in the ‘80s. So we had a lot of capability in workers in optical disk areas. So we said, “Well, let’s look at this thing called photonics and displays and telecommunications.” So we were fortunate to get a grant from the National Science Foundation. I mentioned Chris Gabriel, who’s here, who was our manager. And we put in place the curriculum by which we could then generate spinoff companies using the SBIRs. And we actually developed a regional cluster around photonics and, in particular, displays, and built companies that then ended up being sold -- one of them which laid the foundational technology for Avatar and the technology that Jim Cameron used -- and created the 3-D technology in this country that’s now employed in our living rooms.

So the power of understanding where the capability is, leveraging that, having support -- this is where we get to connect the dots from curriculum development, from DOL to community college, to NSF and others, and DOE -- is so important for, you know, really building capacity in these cluster areas.

MS. GORDON: That’s great. Thank you. It’s good to know you’re thinking about (inaudible). That’s great.

Just a last question before we open it up.

You know, one thing that has been really impressive over

the last year have been these sort of efforts like E-RIC and other grants that are sort of competitions out there. And people respond to that announcement, form these amazing partnerships, do all this work to try to gear up to get the grant, and then some of them don't.

And I think that goes to a bigger question, is what role can you all play in helping maintain those areas that might be emerging and not quite there yet, or might have just not been able to get one of the -- you know, the only grant for E-RIC, despite a really impressive application. Or are in the areas that you'll find through your mapping are just not there yet, in terms of sort of having even an emerging cluster.

So what role do you think that the Federal government plays in facilitating, doing leadership development, figuring out the sort of development strategies in places that sort of aren't at the cutting edge yet?

John first, and then we'll get to --

MR. FERNANDEZ: Well, you know, I'd say I know if you're in a competition and you come in second, it may at the beginning of that moment you may not feel it, but often what we hear from folks is that, you know, the process of gearing up for that competition in itself was a catalyst for a lot of collaboration and conversations from people who had never worked together.

And so one of things that happens, we circle back and look for other opportunities to support and keep those consortiums together. But often they figure out, “Hey, you know what? We’ve got what we need. Let’s start aligning our investments.” Because again, it’s not always about the money.

Now, you know, if you’re going after $122 million, that may be a little tougher (inaudible). But for a lot of the things we’re talking about, like the I6 Challenge, those were million-dollar investments, with the add-ons, the tag-alongs with the SBIR and others, to get it up to, you know, maybe a $2 million grant -- I mean, that’s real money. But in the scheme of things, for a regional innovation commercialization facility, or for a concept (inaudible), it’s not a gigantic amount of money.

So for some of the groups that weren’t necessarily funded, there’s collaboration happening now that can go, maybe come back to EDA or someone else for addition, or a different, you know, pot of money. Or look to themselves, and look to the foundations, look for the private sector investment.

So there’s lots of ways to keep this going.

MS. GORDON: That’s a really good point. Sometimes just writing the grant is the way to organize your projects.

Go ahead.

MR. VASQUEZ: Yes, we're in the process of going through that right now. A while back we let out a Rural Business Opportunity Grant, and we received over 400 applications. Obviously, we're not going to be able to resource all of those, and we're going to have a lot of them that are not going to get any money.

But what we're seeing in these plans is that a lot of them are very good. We don't want the investment and the energy that went into that to disappear.

So what we're looking at is a tiered structure on how we respond to these plans. Some of them are going to be really good. Some of them are going to be in the middle range. Some of them are going to need some technical assistance.

And we're looking within the framework of our existing programs, how we can go back and connect to those communities, and stay connected, and through our field structure and our state directors and field staff, keep them engaged.

So those, for example, that have the excellent plan, we're going to engage our field staff with those communities. Because we can review those plans and say, "You know what? Within the framework of this plan, you were wanting to this, this and this. You know, USDA can still do that, even though you didn't get selected. And we'll work on that."

"Oh, by the way, let us reach out to Labor and see if they can provide employment and training."

So we have the ability to convene at the local level. "By the way, we can call state government."

So we work with those.

The others that need a little technical assistance, we do have a grant program that provides technical assistance for planning. Our goal is to engage those communities so they can advance their planning and get to the point where they become competitive. And those that need extra work, we're rolling out a Stronger Economy Together initiative that provides training and technical assistance on the ground with the leadership to begin to shape that plan.

MS. GORDON: That's great.

MR. VASQUEZ: So we want to try to keep them engaged.

MS. GORDON: Thank you. That's a great answer. And I don't mean to pick on DOE. It's just the agency I know the best and I always use you as an example.

But also as a good example. I know the ARPA-E folks had a big conference of all the people that didn't win ARPA-E grants in order for them to meet each other and meet other investors. So there are ways to do it.

I want to give people a chance to ask questions. I know we have microphone runners.

As with all the other panels, I'm sure people have questions for the next 10 minutes. So -- I see many hands already.

Let's start over here and we'll move around.

MR. BERGSTROM: Kim Bergstrom from Stanford (inaudible).

On the national cluster map, will it be based on political or economic geography? And if it's the latter, which I hope, how are you going to define the economic geography, and who's going to define it?

MR. FERNANDEZ: Well, you're probably going to get more into the weeds than I -- I mean, the whole point of it is a look at the true economic -- you know, the geography of the economy, not the geography of arbitrary political boundaries.

You know, there are some folks here from Harvard that I'm sure could get into the details of data sources and others if you'd like to.

MS. GORDON: You may want to stand up again, actually. You're doing the map, so you can pepper him with questions.

I only have five minutes, I've been told, and not 10, so I'm going to go to the middle of the room for a couple more questions. Whoever gets to the microphone first. And if you'd introduce yourself, that

would be great.

MS. WALSHOK: I'm Mary Walshok from the University of California. And I confess, I am the evaluator of the Department of Labor's WIRED grant. So that frames my question.

Where is Labor? This is the third or fourth meeting I've come to of this character, at this level. And it's extremely impressive and exciting. But for someone who knows the role that (inaudible) play in regions across the United States, why is Labor not at this table?

MS. JOHNSON: So, maybe I could speak on behalf of Labor.

So I was just with Jane Oates yesterday, who is Assistant Secretary working in this area, and we are connecting very deliberately between the college system into our E-RIC program. So Labor is there.

And I hear you. And they are very active.

MR. VASQUEZ: They're part of the K-RIC, if you will.

MS. WALSHOK: They're just not in the conversation.

MS. JOHNSON: Well, they're very much --

MS. WALSHOK: They may be in the process.

MS. JOHNSON: Yes, but they're very much in the conversations with us.

And it was a WIRED grant that started the boatbuilders. So

thank you very much. (Laughter)

MS. GORDON: In the back?

MR. SINGERMAN: I have a question for John Fernandez, Secretary Fernandez. My name is Phillip Singerman.

John, could you share with us some of your thinking about the application of regional cluster strategies in the Space Coast and the Gulf coast?

MR. FERNANDEZ: Sure. Many of you know Phil Singerman. He was one of my predecessors, back in the day. He's been a good resource for me, as well.

But, you know, we've had an opportunity to -- well, to tell you about what's happening right now with EDA and other agencies, is that we're having opportunities from time to time to take all of this theory and actually apply it in a highly concentrated way.

So, as part of the report that went to President Obama as to how we were going to deal with the transition in the Space Coast area, and other states as well that were affected from the transitioning out of the space shuttle program, the President proposed, as part of the NASA budget, $100 million to help accelerate diversification economies and deal with workforce transition issues.

As a first wave of that we're running right now a $35 million

cluster competition for the Space Coast. And as part of the research that went on prior to the President's report, there was a lot of activity happening in the region and at the local level around what were clearly emerging clusters, industry clusters, that were complementary to the space industry and somewhat separate from it. And so the competition we're running is specifically for proposals to drive those specific cluster initiatives.

So it's going to give us an opportunity, in a short period of time, to look at how we can take a lot of this discussion and apply it in a highly concentrated area. We're really talking, geographically, of two adjacent counties. So we're excited about it.

Brian McGowan's here, as well. He's the Deputy Assistant Secretary for EDA. He's been the primary point person on the economic recovery, as far as the National Incident Command work around the Gulf Coast. And I know they're in the process of developing a (inaudible) report, as well as some of the assessments that were done in collaboration with the International Economic Development Council and others.

I suspect that as that program moves forward there will be a lot of reference to regional cluster initiatives, as well.

MS. GORDON: Karen, last comment?

MS. MILLS: So we actually have one of our 10 winners in the geospatial area, happens to be in Louisiana and Mississippi. And it's sort of a -- it's called the "Enterprise for Innovative for Innovative Geospatial Solutions."

It was built, in large part, on some capability that NASA has there, building engines, I think, for the space shuttle, and some other capability around GPS and GIS. And they have an extraordinary set of potential commercialization activities, with lots and lots of small businesses who have a very good growth trajectory now involved in the cluster.

So this is one of the hot spots, I think, for potential economic recovery and job creation. And they put in a great application, and now we're able to support them.

So we think that there are a lot of things like that. They're nascent. And they're going to put their best foot forward, and we're going to be able to generate some good grounds-up economic activity.

MS. GORDON: Thank you so much.

I hope you're all as encouraged as I am by the fact that these agency heads are definitely thinking about this issue in a really specific way.

Join me in thanking all of the panelists. (Applause)

MS. ROSEN-WARTELL: So we have one more speaker this afternoon, and I think it's going to be a really perfect note on which to end that perfect panel.

While our folks are clearing the stage, let me just say -- I wanted to comment on one thing that I heard from Karen Mills which really spoke to me.

You know, we're at a moment in our broader national debate in which there's a lot of pain, a lot of uncertainty, a lot of anxiety and even a lot of anger.

And she talked about how the regional mapping, and understanding where these clusters lie actually allows policy-makers to lay our for citizens a road map for prosperity.

And I think that's actually a really important link between this sort of inside economic policy conversation in the broader national debate. We need to be able to lay out in every community around this country a real road map for prosperity -- how they're going to be able to create jobs and some opportunity again in many of our cities and towns.

So it's my task tonight now to introduce a final government leader, one whose job it is to put out a road map for prosperity for regional leaders for our rural areas around this country, the Secretary of Agriculture, Tom Vilsack. (Applause)

Secretary Vilsack understands that economic collaboration is a critically important part of building prosperous world communities because it was a major piece of his own work in Iowa, promoting the rural economic development through a hugely successful and creative Great Places program.

The Secretary is building on that experience at USDA with his now Rural Innovation Initiative, a plan to increase the economic vitality of rural communities by promoting a regional outlook in the planning and coordination of rural economic development.

You've heard already on our panel about some of those initiatives. And we're looking forward to him giving us a larger picture of how this relates to the challenges our rural economy faces.

The Secretary has long realized that regional innovation is not specific to our urban-centered companies and high-tech industry, and he's using the power of the Department of Agriculture to bring a rural economic development strategy to all of our rural areas in America.

Please join me in welcoming Secretary Tom Vilsack.

(Applause)

SECRETARY VILSACK: Thank you, folks. Thank you very much. I appreciate the opportunity to be with you this afternoon, and I realize that I am the last of many speakers that you all have listened to

today, so I will try to be as quick as I can.

But this is an important topic for me, and it's an important topic for the country. To give you a sense of why this is important and how it's important, let me take you to a rural community in any of the states that are represented in this room today. Let me take you to a small town, to a home on one of the Main Streets of that small town, around the kitchen table where you have a mother, a father and a child. The child is just about graduating from college, and the question is whether or not he or she will leave that small town and that rural area or whether they will pursue their dreams in their hometown. If you are that mother or that father, you have a challenge ahead of you.

If you take a look macro-ly at the rural economy, what you find is that you would have to tell your son or daughter that the per capita income difference between what he or she can make in an urban and suburban area and what they might be able to make in a rural area is over $10,000 a year difference.

You might have to explain to him or to her that this is a place, rural America, where there is a significant amount of poverty. In fact, 90 percent of the persistent poverty counties of this country are not located in inner-city areas or in urban areas or suburban areas. They are located in rural America. And you might have to also remind them that

over the last census, 56 percent of the counties that are rural counties essentially reported that they lost population. And I would be willing to bet anyone in this room that when this census is completed, that number will be closer to 60 percent.

How do we make the case to bright, young people that there is economic opportunity in rural America? And when I conclude my remarks, I'll tell you why that's important to all of us, regardless of where we live.

Well, we at USDA take this challenge very, very seriously. In the past, we were able to say, very easily, if we could just simply improve the farm economy, that will have a rippling effect and create opportunities in those rural communities. As the old saying goes, if farmers are doing well, communities in those farm country, in rural areas will do well. That's tough to — a tough case to make today because farmers and ranchers and growers represent less than 1 percent of our total population. And only about 11 percent of those who farm make sufficient money to support their families. In fact, if you took a look at all of farm families and you asked the question, "How much of your income comes from farming?" you might be surprised to know that only 9 percent of all farm families' income comes from farming.

That puts a high premium on the need for us to have

economic development and job growth in rural communities, so we can make the case to that son or daughter that there is a future in their small town.

I think this administration has aggressively attacked this challenge. We, first of all, decided that there needed to be a series of different strategies, different new opportunities that we would focus and showcase in a way of suggesting that the rural economy is capable of revitalization.

And one of the first things we did was to take a look at the enormous impact that broadband can have on expanding opportunity. The Recovery Act gave us this chance with essentially allocating to the Department of Agriculture roughly $2.5 billion. And over the last 18 months or so, we have made decisions to allocate those resources in over 330 projects which will help to expand broadband access, allow small businesses to be able to expand their markets from local markets and perhaps regional markets to potentially global markets -- the opportunity for farmers and ranchers and growers to have real-time information, so they can make more informed decisions about their operations, the opportunity for schools, rural schools that are stressed and strained to find the resources to have advanced placement courses, to be able to expand their course selection through technology by linking up with other schools

that have more teachers available, and by improving health care access by allowing telemedicine to be developed, so if you are a small business or small industry, you know that you can access quality health care, even though you may be 100 or 200 or 300 miles away from a tertiary care center. Broadband expansion is one of the key strategies for expanding opportunity in these rural areas.

Another strategy is the enormous opportunity that energy presents, from biofuel production to renewable energy production.

Just take biofuel production, for example. The Congress has challenged us to produce 36 billion gallons of biofuel by the year 2022. When we meet that challenge, $95 billion will be invested in rural communities across the country in biorefineries, and somewhere between 800,000 and 900,000 jobs will be created. It will certainly improve the bottom-line for farmers because we will move away from a biofuels industry that is focused in one region of the country -- the Midwest -- and allow it to expand and grow in all four corners of the country. That's an enormous opportunity.

We have a program which we refer to as "Know Your Farmer, Know Your Food," which is also part of a strategy to reawaken the rural economy by better linking local consumption with local production. Do our schools and institutional purchasers of food know what is actually

grown and raised in their region? And if not, how can we facilitate an awareness of what is grown, and how can we create the supply chain locally that will allow that local school or that hospital or that small college or that prison to be able to purchase food locally, maintaining the wealth in that community, allowing it to roll over several times over?

So we have teams of people from USDA traveling across the country in school districts, advising school districts as to what is being grown. We are using our Rural Development resources—and perhaps Victor went into this—to help finance the supply chain, the storage facilities, the warehousing facilities, the slaughter facilities, job creation opportunities -- again, improving bottom lines for farmers, ranchers and growers.

We even see, as part of our strategy, a more effective use of our conservation resources. Few people realize the enormous opportunity that outdoor recreation represents. It is roughly a $700-billion industry. Those who fish, those who hunt, those who hike, those who bike, those who four-wheel spend a tremendous amount of resource. To the extent that we can better link economic opportunity with our conservation dollars, improve the utilization of our natural resources, we will grow that industry even further.

In our mission area of USDA, we have responsibility for 193

million acres of forest and grasslands areas called the U.S. Forest Service. Each year, 173 million people travel to those forests. Each year, at least 300 million people travel around those forests -- a tremendous tourism opportunity that we need to take more and better advantage of.

And, finally, the creation and development of ecosystem markets is an opportunity for new resources and capital to be invested in rural communities.

I'll give you an example of what an ecosystem market is. If you are a small town in southern Ohio and you're confronted with the circumstance of having to build a new wastewater treatment facility because your department of natural resources is suggesting that there are problems of the water quality that you're utilizing, you have now two choices. You have the choice to build the facility, or you have the choice to establish water credits that you can essentially sell to farmers that they can use to institute conservation practices that prevent soils containing pesticides and chemicals from getting into rivers and streams, thereby reducing the necessity for the upgrades that the department of natural resources is requiring. As we create these opportunities of ecosystem markets, we create resources that otherwise might go into high-priced infrastructure that can be used to create wealth opportunities in farm country.

All five of those strategies are currently at work within USDA and are being worked on and expanded. Today, for example, we're announcing roughly $3.3 million in technical assistance grants on our broadband program, to 14 States and Tribal Areas, designed to give them the resources to go out and aggressively promote the utilization of broadband, so that small business owners and communities fully understand the power of this resource.

But even if we focus on these strategies, it will not work as effectively unless we put it into a frame that encourages communities in those small towns and in those rural areas to look beyond the borders of their own individual town. It is important that they understand that they are part and not alone -- they are part of an economic region. They are part of a larger geographic area, and they must understand their role that they play in that region, and they have to understand the opportunities that the region presents and how they can leverage resources and leverage brain power to take full utilization of those opportunities. And so we're in the process of trying to encourage economic development directors, chamber of commerce folks in these small communities to think beyond their borders.

The way it used to work, you were only concerned about that industrial park on the outskirts of town. You built that spec building, and

you hoped and prayed that somebody would come and fill it. And when it did, you'd have a celebration. The balloons would be out, the ribbon would be cut, the small-town newspaper would cover it, and you would think you had been involved in significant economic opportunity.

I'm not demeaning those efforts. I'm just simply saying that we need to do more and we need to leverage, and we need to get a bigger bang for the resources that we are currently spending in these communities.

The reality is that if you leverage those resources and leverage the brain power of a region as opposed to a small town, you have extraordinary opportunity to fully utilize these strategies of broadband and energy and conservation and outdoor recreation, in ecosystem markets and this local production opportunity significantly. And you can use the resources more effectively and efficiently in terms of infrastructure construction, and those infrastructure dollars can be wisely targeted and spent if you have an overall regional vision.

That requires a different thought process. It requires folks to sit down and talk to each other. It requires folks to think about what their strengths and weaknesses are as a region, not just simply as a community.

We want to facilitate that kind of conversation at USDA.

And so today, as part of our Rural Business Opportunity Grant Program, we are announcing 27 grants of a little over $2.5 million in 17 states. Nine of those 27 grants are specifically targeted to nine regional efforts to encourage the kind of planning and visioning that is required in order to have a full understanding of precisely what your capacity as a region can be, how you can fit that capacity into some of these strategies that USDA is investing in, and how you can leverage your resources.

In addition to that, we're also announcing, as part of our Rural Community Development Initiative, efforts to provide more technical assistance in the development of these plans. And so we're putting out a Notice of Funds Availability today of $6.25 million, in which we are going to encourage folks to understand and appreciate thinking regionally by offering additional points, as part of the application process, if what is submitted is something beyond what we usually get -- which is an individual community's application -- where we see opportunities for communities to essentially come together and make a single request as a region. They'll get additional points and most likely make their application far more competitive than it might otherwise be.

We decided to test-market this in 2010. We had a small amount of money -- which I referred to earlier, the $2.5 million -- and we

decided to say, “Is there anybody interested in this regional approach?” And I see Chuck here. He knows where this is headed.

I think we thought maybe we’ll get 10 or 15 or 20 applications. I think the folks in Congress thought we wouldn’t get any applications. We ended up getting over 400 applications.

We were so overwhelmed with the response that we realized we had a responsibility above and beyond awarding the resources that we had available -- that we really needed to also provide additional technical assistance to those who weren’t successful, because we have something going here and we want to continue to sort of support it.

And as a result of that response, we crafted our 2011 budget to really promote this concept. Because once you have people thinking regionally, once they have a strategic vision for their region, once they understand where there are possible opportunities for broadband or conservation, whatever it might be, then the question is how can you help them implement that vision.

Well, we have roughly 40 Rural Development Programs. We take roughly 20 of the 40 Rural Development Programs that could really be meaningful, and we essentially say to ourselves we’re going to take a percentage of those programs off the top. You can pick a percentage, 1 percent, 5 percent, 10 percent, whatever the percentage is. We’re going

to park those resources, and we're going to say to those successful communities that are thinking regionally, "This is the pot of money that we will use to help you succeed." We'll break down the silos of these programs. We'll try to provide as much flexibility -- we'll help walk you down the Mall to the building, and we'll help navigate you through the maze of programs that other departments have, like we have. We'll adopt you. We'll help you. We'll assist you in understanding what the requirements are.

Here is why this is important, apart from the fact that for many people living in rural America, they think that folks in this city do not understand them, and sometimes do not craft programs with them in mind. If I had a dollar for every time I've heard in this city, since I came here, that 80 percent of America lives in urban America, we wouldn't have a deficit. I care about that other 20 percent, and here's why.

I make the case that the value system of this country is rooted where those 20 percent live. If you think about how this country got started and who started it, it's pretty clear that the folks who started it were rural, and most of them were farmers.

And as they conceived this country, they understood that there was some mutual obligation here between country and citizen -- just as there is a mutual obligation between farmer and land. The farmer

wants to reap the benefits of planting, but understands that you can't continue to take from the land, you've got to give something back. You have to replenish it.

A country is no different. You can't keep taking from it. You have to give back from time to time.

Now, who is it that gives back to a country? And how do they do that?

Well, one area where you can give back to your country is in military service. Rural America represents 16 percent of the population of this country, but 40 percent of the kids over in Afghanistan and Iraq that are risking their life every day, they come from rural America. They come from those small towns, those farms, those ranches.

Now, why do they do that? Now, I would imagine that some are saying, "Well, because that's where the opportunity is." I think it's more than that. I think they're raised in an area where the value system that surrounds them impresses upon them that they do have an obligation, a responsibility to give something back.

I think that makes rural America a very important place. I think that makes rural America a place that everybody, regardless of where you live, ought to be concerned about -- apart from the fact that it's a source of your food, 80 percent of your water, an ever-increasing

amount of your energy. That's where your value system is. It's where it's alive and well. It's where it's replenished from generation to generation. And if we allow it to age and decline and present less of an opportunity for those to enter the middle class and be part of the middle class and enjoy the benefits of the middle class, we will all suffer.

So I'm here today to tell you that USDA is certainly focused on this. It is part of our responsibility. It is part of our mission. It is part of our passion. And we're going to work hard to convince policy-makers to give us the tools and the flexibility to make this work. And I think if we are given those tools and that flexibility, we can create more opportunity.

Now, why am I so confident of that? Because as a governor for eight years, I saw it happen in my State.

Reference was made to the Great Places. They just did a study of Great Places. It reduced the decline in population, increased tourism, increased jobs, increased income levels.

We also saw the benefit of focusing on strategies and industries that made sense. In 2004, 2005, Iowa had one of the fastest-growing economies in the country, in large part because of our focus on energy, expansion of broadband statewide, opportunities of using conservation dollars, the kind of strategy we see here.

Every state has the capacity to make and take advantage of

this. And every State should.

So, with that, I would be happy to answer questions.

(Applause)

MS. ROSEN-WARTELL: Okay, once again let me remind everyone to wait until the mike comes to you, please.

Over here? And, again, please identify yourself.

SPEAKER: Secretary Vilsack, thank you very much.

How do you see the progress going on in the scale of commercialization of breakthrough biofuel technologies, in which we beat the world? And, also, how do you see the development of the programs that can help to monetize that, and maybe tens of billions or hundreds of billions of dollars of exporting that technology eventually?

SECRETARY VILSACK: I think, first and foremost, there has to be an effort by USDA to expand the reach of this industry beyond the Midwest.

Congress has essentially instructed us to expand it beyond corn-based biofuels, and that gives us an opportunity to ask the question in the Northeast or the Northeast, or the Southwest or the Southeast, what is the feedstock that would be most available, most efficient to use, that can create opportunity?

We have just spent the last several months at USDA

essentially looking at the country, and looking at the feedstock research, and attempting to identify what those feedstock opportunities are, and how many biorefineries it would take to meet the 36 billion gallon goal set by Congress -- which would be roughly a quarter of our fuel supply. It is, by the way -- if we meet that -- when we meet that goal, we will use 350 million barrels less of imported oil, which is a good thing.

And we have a fairly clear idea that in some cases it's woody biomass. In some cases it's perennial grasses. In some cases it's cutting-edge algae research. And in some cases it's waste, animal waste.

We want to take the Farm Bill programs that provide assistance to the producer of those feedstocks, that allows biorefineries that exist to be retrofitted, or to create new biorefineries and use those in a very strategic and thoughtful way to create opportunities in all four corners of the country.

So, first and foremost, you have to sort of expand this industry nationwide.

Once you do that, you then have to ask yourself who is going to buy this fuel? And where are they going to buy it?

The reality today is that with the 8 to 9 million flexible-fuel vehicle cars in our fleet of 230 to 240 million cars, we've almost tapped out our capacity to use additional biofuel production. And if we expand the

number of flexible-fuel vehicles, then we have to ask the question, is it easy and convenient for the customer to get it? There are 162,000 gas stations in this country, but a handful provide you E85 capacity.

So it seems to me that simultaneously with building new refineries and perfecting the research, we also have to be investing in the distribution system, and using resources from USDA -- and the Department of Energy if they're willing to allow us to do so -- to encourage blender pumps. So that when you go to the gas station, if you have an E85 vehicle, and I've got an E10 or an E15 or E20 vehicle, you and I just simply turn the dial, you get what you need, I get what I need -- one tank, one pump, very convenient, and spread all over the country.

So we've challenged ourselves at USDA to promote at least 10,000 of these pumps in the near future -- and the tank systems, and the storage systems -- and using our resources.

And then we want to suggest -- as there is debate about what incentive you need to continue to have, and who needs to get those incentives relative to tax credits and so forth -- that we think about ways in which we can use those resources to promote the manufacture and purchase of those flexible-fuel vehicles.

I have nothing against electric cars. I think they're great. And we need them. But the reality is, we're not going to have 230 million

of them. And we're certainly not going to have 230 million of them in the near future. We need a bridge. And flexible-fuel vehicles are that bridge.

When you do that, and you create sufficient demand, then you begin to ask yourself, what are the environmental impacts of that? And if you can establish -- which I think you can -- that there are environmental pluses to this, you can begin lowering barriers that may exist to outside resources, and create competition. And, conversely, you may be able to begin the process of export. Actually we're exporting right now a good part of our ethyl, because we've sort of been capped out in terms of our domestic need.

This is really important -- especially if you use agricultural waste as a feedstock, especially if you can use perennial grasses on land that is currently being cropped, where you might be environmentally better off with grasses. The water may be cleaner with grasses, but there still may be income opportunities for the farmers and the utilization of that land. So you have all these equities that you have to (inaudible).

MR. ROTH: Yes. My name is Duane Roth from Connect San Diego, and a native of Henry County, Iowa.

SECRETARY VILSACK: That's a local reference (inaudible).

MR. ROTH: I would like you to comment a little bit about

one thing you touched on but didn't spend a lot of time on -- the education system that still seems to be functioning in rural America.

And then earlier today we heard about the mismatch between the open positions in this country, especially in the STEM area, and the fact that we're not producing enough.

So I wonder if you have thoughts about manufacturing, and some of the more high-tech things in the Midwest?

SECRETARY VILSACK: Well, you know, I think if you go into ethanol production facilities you're going to see that it's very, very -- very much dependent on computer technology, in terms of the process. And there are co-products, or byproducts that are produced from the ethanol production operation that basically can create a multitude of products.

And I think it is the beginning of an effort to try to create a biologically-based economy. I mean, there's no reason why you can't grow virtually everything in this room -- the cloth on that table, the clothes that we're wearing -- today fabric is being made from corn. To me, that's a tremendous opportunity here. And it doesn't necessarily get you into a feed-versus-fuel debate, or a feed-versus-whatever debate, because of the extraordinary productivity that we're seeing, that we'll continue to see. That, in and of itself, is a significant research and development component

of what will be successful for rural America.

So I think there are tremendous opportunities. I think broadband expands opportunities for small manufacturing to be located in these rural communities because now they can be connected to markets, they can be able to reduce their input costs by searching around the world for product.

So I think this strategy does play to creating all kinds of industries.

As far as the education system is concerned, here's the challenge. There are two challenges -- and I'm not the Education Secretary, so I'm sort of veering out of my field here.

But time is an issue. Time is an issue. Time on task is an issue. You know, if we in this country think we can do in 180 days what the rest of the world is doing in 210 days or 220 days, our kids are going to wake up one day to find out that when they're 17 they will have spent two years less in school than their counterparts in China, and clearly not have been as challenged as their counterparts in China. So time is an issue.

And I will never forget being in the Iowa State Fair, when I proposed and suggested that we maybe lengthen the school year. A woman came up to me and she said, "Why are you taking my summer

vacation away from me?" I said, "Excuse me?" She said, "My summer vacation."

I tried to explain to her what I'd seen in China, what I'd seen in India, what I've seen across the world. There's an education process that we -- we have become complacent in this country about our education system. We assume that because our universities and colleges are so terrific that no matter what the problems are when the kids get into college and university, we make up lost ground rapidly. And by the time we get out of colleges and universities, we're in great shape.

The problem is, we're -- as a percentage of our population -- graduating fewer and fewer, fewer from colleges and universities. And, because of our immigration policy, in part, not as many bright young people are coming in from other countries. They're staying home. Their university quality is going up. And we've got some serious issues -- long term. So that's number two.

Number three, on the issue of STEM, I -- to be very candid with you, I always refer to it as "steam." I think people forget the arts and they do so at their peril. You want to look at creativity, you want to look at innovation, it isn't just doing the math calculations and knowing the equations. It's being able to think outside the box. And that's what, in a sense, art allows you to do. And so I think we may make a mistake in this

country just focusing on STEM.

But rural schools are challenged, because they have too few students to be able -- and such a little income base that they have a hard time deciding whether they have the AP chemistry teacher, or the AP English teacher and they have to choose. Whereas in a suburban or urban area they may be able to afford both.

So that's why broadband becomes important, because you may not have to make that choice. You may be able to access that AP teacher in another school district if you can align your schedule -- and that's the interesting issue about this, is that every school district has a different schedule. Some have 50-minute classes, some have 45-minute classes, some start at 8:00, some start at 7:45. You've got to align the schedules in such a way that you have access to additional -- to be able to line up so your students have access to teachers in other distances. And I think we have to use that.

And I think that there obviously has to be a conversation about what kind of incentives we can create to make folks in those rural communities really think differently. They will point to you, if you go to a small -- if you go to Waco, the high school in Henry County that you're familiar with -- they will tell you, "But, gee, we just sent a kid to Harvard." Well, that's great, except the graduating class is like 64. What about the

other 63? Where did they go? What did they do?

And they will tell you, “a lot of personal attention,” and “we care about our kids.” Absolutely. But there needs to be a lot more focus on rural schools, I think, if we’re serious about bringing all of our kids along at the same time.

MS. ROSEN-WARTELL: Well, what a terrific and inspiring way to end for us. And it’s a wonderful bookend to a morning that began with the White House, the Secretary of Commerce, and we had all of these different agencies here today.

And our country has enormous challenges. And what we saw here is that throughout all the different areas of responsibility, this theme of Regional Innovation Clusters is really pervading the work of all of them.

And that’s because of the work that many of you around this room are doing to improve the case on the ground. It’s the work -- it’s because of the work that our partners here in this event today, the Council on Competitiveness, NADO, and especially the Brookings Metropolitan Project leadership of Bruce Katz has been doing to make this concept an important part of the framework, to demonstrate the evidence that is out there so that the Washington policy system can embrace it and prove it.

We thank you, Mr. Secretary, so much. And thank you,

everyone. (Applause)

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CERTIFICATE OF NOTARY PUBLIC

I, Carleton J. Anderson, III do hereby certify that the forgoing electronic file when originally transmitted was reduced to text at my direction; that said transcript is a true record of the proceedings therein referenced; that I am neither counsel for, related to, nor employed by any of the parties to the action in which these proceedings were taken; and, furthermore, that I am neither a relative or employee of any attorney or counsel employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.

/s/Carleton J. Anderson, III

Notary Public in and for the Commonwealth of Virginia

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