EPA Region 2

Working Together Reducing GHG through Materials Management
July 23, 2009

EPA Regions 1 and 2 hosted the Northeast Forum on Climate-Waste Connections, a series of free web-based training sessions and discussions with experts and practitioners from the Northeast and beyond. The goal was to advance the discussion about materials management and the climate connection in practical ways that will help communities integrate waste reduction and recycling into climate plans. The goals of these training sessions were:

- Bring attention to the climate impacts from managing solid waste and recycling.
- Identify issues that would benefit from regional and national collaboration.
- Provide tools and assistance for incorporating materials management into climate action plans.

Working Together Reducing GHG through Materials Management

- NEWMOA "Climate-Waste Action Plan to Support State Efforts"
- West Coast Forum: What can we learn from the work they've done
- Future Directions for the Northeast

Beginning of Transcription:

Adolph Everett: Terri Goldberg is from North-East waste management official association (NEMOA). Terri joined NEMOA in 1989 and enters into wide range of pollution prevention, plastic reduction, solid and hazard waste and other projects for the association. She currently directs NEMOA's mercury and other toxic reductions programs and activities, pollution prevent initiatives, solid waste projects, and climate waste action plans. She manages the NEMOA's staff and writes and overseas a number of grants and contracts. Prior to joining NEMOA, she was an associate with the consulting firm Industrial Economics, Incorporated for several years and prior to that she spent a year at the US EPA Region 1 office working on waste reduction initiatives.

Next we'll hear from Resa Dimino. Resa is a Special Assistant in the Commissioner's Policy Office of the New York State Department Environment Conservation. She focuses on solid waste and recycling policy. Most recently, Ms. Dimino served as the

Director of Programs for the Bronx River Alliance of Bronx New York. Prior to that she served as the Environmental Analyst for Bronxsboro President Adolpho Carrión, Jr. and its predecessor Fernando Férrér.

Next up will be Sarah Weinstein of the Massachusetts Department of Environmental Protection. Since 1999, Sarah has been a deputy assistant commissioner in MA DEP's bureau of waste prevention. She coordinates policy development on a wide variety of pollution control and prevention issues and overseas bureaustic planning and communications. In previous positions at MA DEP, Ms. Weinstein directed the division of planning and program development and the bureau of waste site cleanup and shared a board that licenses LSTs which are private sector experts in site assessment and cleanup.

Our final Presenter will be Viccy Salazar of the US EPA's Region 10 office based in Seattle. The Region 10 office covers Alaska, Idaho, Oregon, and Washington State. Viccy has worked at the Region 10 office since 1995. In her tenior at EPA, she has worked on a variety of issues including lead, PCBs, electronic stewardship, and most recently climate and materials management.

And this is final reminder before we get started, you may submit questions at any time. The question box should be on the upper right hand of corner of your computer desktop. There is a small double arrows that you can click on to either reveal or hide this panel. We will try to address a few questions following each presentation. We've allotted more time at the end of the session to answer the additional questions as well. Anyone who submits a question that was not addressed during the webinar will receive an email response.

With that let's get started. Terri are you ready?

Terri Goldberg: Good morning everyone or good afternoon everyone. I first want to start off by thanking EPA Regions 1 and 2 for inviting NEMOA to make this presentation for the webinars this afternoon. It's a great opportunity to share information on solid waste management in the northeast and some of the work on the way to address the connection between climate change and waste management.

What I want to speak about this afternoon is a little bit of big picture on solid waste generation and management in the northeast, who is responsible for waste management in the region, who are the very supportive and types of organizations involved in managing solid waste, and who has what role in solid waste management and what are the states doing in terms of their solid waste plans and their climate action plans in terms of addressing the issues of these webinars of the connection between solid waste and state climate action plans. And this is going to create a context for, in particular, what Sarah and Resa are going to talking about in the follow-up.

So, let's talk about what makes up solid waste management. These figures we pulled from various EPA sources so they are national data on what is comprised of municipal solid waste. Paper and paper products, cardboard, and those kinds of products; of these type of wastes make up of largest portion of about 33 percent. Yard trimmings is another 13 percent or so; food scraps similar percent; glass, metals, plastics and wood, each range between 5-12 percent of the solid waste range; and you have rubber, leather, textiles, and miscellaneous waste all about 3 percent of the solid waste stream. One of the things to take note of is if you look at the combination of paper, yard trimmings, food waste, wood waste, you get about two thirds of municipal solid waste stream is made up of organics. That's important when you looking at the connection between climate change and solid waste management and we'll talk more about that in a few minutes.

So, in terms of the national picture of municipal solid waste, this is what some of the EPA's data looks like. Nationally, there's about 254 million tons of solid waste generated a year. That's about four and half pounds per person. About 63 million tons is recycled and about 22 million tons is composted. The recycling rate nationally is estimated to be around 30 percent and that we're going to see again holds true for the northeast. When we break done and look at data that NEMOA has collected for the northeast, we estimate that about 52 million tons of solid waste was generated in 2005. That we based on data we, NEMOA, received from the northeast states and when I say northeast, I am referring to the states that are particular members of NEMOA, that includes Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont. I know other people draw different lines around what they call the northeast, but that's what we mean when we look at this data. We have about 36 million tons of that waste; we estimate were disposed in landfills for incineration. What we find when we look at how waste is managed across the region, that the states are very interdependent on their disposal, incineration, and recycling capacity in the region. The states ship wastes or generators in each state ship waste to other states to be managed and handled in other jurisdictions so there is an interdependence in the region for a capacity to manage solid waste.

In terms of recycling, in the region, again based on our surveys of the NEMOA member states, we found that this is a wide range in the recycling race in the states in the region for about 20-42 percent. We estimated from the data that we got from the NEMOA member states that about 16 million tons of municipal solid waste was recycled in 2005.

I wanted to contrast this a little bit or show it in light of data that from a publication called Bio-Cycles has published which found that for New England-wide the recycling rate is about 29 percent, New Jersey is more closer to 36 percent, New York is 43 percent. But some of that variability has to do with how they count what is recycled and their sources of data. So, there are some questions in the data in terms of what are the precise

recycling rates but this gives you some general sense of what recycling rates are in region. We have noted from various studies that recycling rates in the region as well in nationwide were increasing fairly steadily in the 1980's and 90's, but since around 2000, they have really been flat and we found that to be consistent.

The kinds of materials that municipal solid wastes are typically recycled in the region include glass, paper, cardboard, plastics, aluminum, steel cans, yard and food waste. But as you can see from the recycling estimates, overall recycling estimates, there is certainly room for improvement and how much room there is for improvement varies a lot among these different types of wastes. So, there is a higher recycling rate, for example, in the metal categories than in some of these other categories.

Turning our attention for a moment from municipal solid waste to construction and demolition waste, which is another very large and substantial, typically non-hazardous solid waste stream that's generated; C&D waste as we call it. It includes a variety of materials including wood, brick, concrete, asphalt, glass, metal, drywall, asphalt shingles, and a variety of miscellaneous wastes that you have at construction sites and that includes wood waste, pallets, plastic, wrapping kinds of waste; a variety kind of miscellaneous wastes that are generated at construction and demolition sites. NEMOA have recently published a study looking at C&D waste in the region and we found from the 2006 data that there was about 12 million tons of this waste generated in the region that generally includes most of these wastes that are listed there; may not include all of the asphalt pavement material. We do find that states define and track these materials differently and that the subject of conversations we've been having. But most of this waste currently goes to landfills. We did look closely at the recycling of the C&D waste in the region. We found overall that about 10 percent of its recovered if you don't include asphalt, brick, and concrete in the recovery, because those wastes are extremely heavy and they do have a lot of recycling value but they tend to dwarf everything if you include them in the analysis. The metals recovery from C&D waste is fairly high, it is about 53 percent. Again, we find that the disposal and recycling capacity is very much regional in nature. In another words, these types of waste tend to flow within the states in the region and in some cases outside the region for recycling and waste management. But we also found that there's significant potential to increase recycling of these wastes.

We also took a look at industrial waste; those non hazardous and hazardous wastes in terms of generation rates, and based on some EPA estimates for non-hazardous industrial waste, national estimates, we estimate that there's about 1.1 billion tons of non-hazardous industrial waste potentially generated in the region per year. Again, this tended to be a lot of paper, plastic, pallets, equipment, packaging, all that kind of waste; and that there's EPA's data shows about 2.19 million tons of hazardous waste generated in the northeast again in 2007. That probably does not include the very small

quantity generator hazardous waste. It's really based on the larger quantity generator hazardous waste data that EPA has.

So, that's the big picture on waste generation and some of the data we have on waste recycling and waste management activities. But who is involved in these waste management activities? There are a variety of players who have responsibility for waste management and some of you are involved as the various of these parties. So, we have municipalities who really funded or arranged for hauling disposal of the residence in their communities waste and they do lot of public education, outreach. They actively promote recycling. Many are involved in environmentally preferable purchasing and some of are involved more and more in various product stewardship initiatives.

Another key players are the haulers, consolidators, recyclers, and various disposal facilities. They're really are the ones, for the most part in our region, handling waste, transporting it, managing it at transfer stations, processing it, and ultimately managing the disposal or incineration or resource recovery facilities. In our region, most of these entities are private entities and there are some exceptions to that in some of the states in particular Rhode Island, but for the most part, these are private entities.

State agencies are also key players. They develop the general policy framework, the regulations that govern a lot of the solid waste management facilities. They enforce regulations, they inspect, and do compliance outreach to various regulated entities. In some case they provide funding in the form of grants. They are often conducting lot of technical assistance to municipalities and residences as well as all the various private parties involved in waste management. They collect and analyze data; they have reporting requirements for various facilities that they implement. Again, they are also involved in public education and outreach. They have been doing a lot to promote environmental and preferable purchasing, particularly for state agencies and they have being doing a lot to promote product stewardship in recent years.

So, we find that if you look sort of at a regional perspective on waste that we think of the region really as a waste shed taking that sort of idea for the notion of water shed or air shed. We find that about 74 percent of all the municipal solid waste disposed in the northeast went to facilities in the region. So, you can do the math, the balance of the waste went to facilities outside the northeast region. All the NEMOA states exports some municipal solid waste to at least one other NEMOA state for disposal. So, the states have really found that regional cooperation on reducing generation and increasing recycling has been extremely important and try to keep their programs effective and advancing their goal for recycling rates and waste generation rates.

So, turning our attention a little bit to the question at hand in terms of how do all this waste relate to green house gases. You'll see, I think, particularly in Viccy's slides, a lot

more about this topic and I think this is really a chance to introduce what Viccy is going to talk about later this afternoon. But based on EPA's estimates, there are about 30-46 percent of green house gases can be attributed to the provision of goods and materials. This stands in contrast to the estimates of about three percent of green house gases coming from simply the waste portion. So, there is a large portion of green house gases that can be attributed to the other aspects of producing goods and materials including raw material extraction, transportation of raw materials, transportation of products, the processing and manufacturing of product, and other activities related to actually producing and delivering the product to the customer. Those are important green house gases and ones that NEMOA and many other entities are beginning to realize that we need to account for when we think about the relationship between waste and climate change.

In the term that's being used more and more, the term of embodied energy; and by that really what we mean is that what's the amount of energy required to manufacture and supply to the point of use, the product, the materials, or services that consumers demand. And that we need to do a more effective job at understanding about embodied energy in order to really fully understand the impact of product and waste on green houses gases.

So, here's an example of what that connection is. The connection between, if you examine the lost energy from discarding aluminum and steel cans, plastics, glass, etc. all these types of packaging. You look at that as really a considerable amount of energy equivalent to of about 10 million people per year, of how much energy they consume, or about the amount of gasoline used in 6.5 million passenger cars. So, the national recycling coalition, which is the source of this information, has been trying to translate and make more of this kind of analysis into terms that are more easily understood by the public; to better demonstrate the connection between waste and green house gas reduction with the opportunity for reducing green house gases through a stronger focus on waste products. Their estimates that if we can increase the recycling of a lot of this kind of packaging we would have substantial green house gas reductions. Their estimates range from about 12 to 58 mega tons of green house gas emissions to the atmosphere with this kind of increase in recycling.

I mentioned earlier the importance of organics. The reason why we think organics are an important target or an important aspect of the connection between green house gases and wastes is that we landfill a lot of organics. A lot of the organic wastes are landfilled and when they are landfilled they generate gas, landfill gas, half of which is methane and we know that methane is very potent green house gas. Estimates on its potency range from about 21-72 times greater than CO2. From EPA's estimates, the municipal solid waste landfills are the second largest source of methane in the U.S. and about 23 percent in 2006. Now we do have methane captured in a number of landfills,

but that certainly doesn't capture all the methane that's generated at landfills. Some of the methane that's captured at landfills is flared and not used for some other energy source. So, and if you try to incinerate organics they really have a negative fuel value because they're often so wet. So, really, in terms of the priorities for solid waste management, composting, anaerobic digestion, or on-site conversion to methane for direct energy used really avoids much of the methane emissions that are generated at landfills. So, there is more and more attention being given to promoting and advancing alternative methods of handling organics in the municipal solid waste stream.

So, when NEMOA's been examining this issue and you are going to hear more from Sarah Weinstein, we started about almost two years ago to look at what were the states doing to connect their solid waste activities and their climate change action activities. We started looking at the states solid waste plans and their climate waste plans to see how much synergy was there, what the priorities were, and so these are some of the highlights we found when looking at these two different kinds of state planning efforts that were under way. In all the states, and again this is the eight states in the northeast, we found that the states valued source reduction as the top of the hierarchy in their solid waste management preferences. That if you look at their solid waste plans and their climate action plans, the rates of recycling that the states were targeting overall were increasing their recycling to 40-58 percent for municipal solid waste. In some states that have fairly low recycling rates, this is a very ambitious increase in their solid waste recycling, underneath these targets. There were a number of common priorities that all the states identified for their programs including, organics, C&D, municipal solid waste, and heating waste as high priorities for ongoing focus. There are a number of states in the region that have climate action plans and those climate action plans, where they exist, do include some solid waste management strategies. There are also solid waste management plans in a few states; particularly New York and Massachusetts are currently drafting their solid waste plans. In those solid waste plans they are making the connection between solid waste and climate change.

So, that's sort of the big picture. There are variety of information resources that we think are useful and would recommend to put on this webinar today for further research and information. And with, that I am going to turn over to Jerry.

Someone else: Are there any questions?

Adolph Everett: There are couples of things, thanks Terri. We got a question earlier regarding whether electronics or e-waste are be taken into account in those numbers that you cited earlier.

Terri Goldberg : In many cases, the state will include electronics in their solid waste numbers. Some electronics may be managed as hazardous waste depending on they're impact, but in general they are consider to be part of municipal solid waste stream.

Adolph Everett: Ok thanks. Another question regarding the…;.actually it has to do with the bio-cycle source that you quoted before. Is that a current rate that they are citing?

Terri Goldberg: No they are from 2005, the numbers that I pulled.

Someone else: Is that the latest?

Terri Goldberg: They are the latest ones but I did not use. I didn't use the latest ones, there are more recent numbers but I was contrasting our 2005 numbers to their 2005 numbers. So, what I showed you was 2005 numbers from bio cycle but there's a more recent presentation that they have in the journal. I think they came out in February 2009...pretty sure that's right.

Adolph Everett : Ok great. And another question we have is regarding material headed for the landfill, does that reflect, do those numbers as far as disposal reflect landfill cover? The material used for landfill cover.

Terri Goldberg: For MSW it includes the disposal...what you have for landfill cover you have some C&D defined, used of alternative daily cover and those you do show up in the C&D numbers in terms of generation rates, but mostly for landfill, we were talking about disposal.

Adolph Everett: We have one final question at this time. Is anyone looking into materials management to include sewage sludge solids disposal?

Terri Goldberg: The picture we've presented here does not focus on sewage sludge, but there are people looking at sewage sludge as well. It's an important waste by-product.

Sarah Weinstein: A number of states and a number of water treatment plants are in fact are making sure that their sludge is clean enough so that it can be reused as soil the amendments.

Terri Goldberg: We did not present data on sewage sludge in this presentation today.

Adolph Everett: Ok great. Thanks again Terri. Now move on to Resa. Are you ready?

Resa Dimino: I think so. One second … Can you hear me?

I am Resa Dimino. I want to thank EPA for putting this together and thank all of you for taking time out of your day to listen to us and think about recent climate issues. I am with a new unit here at the New York state DEC, the Commissioners Policy office which

was formed by our Commissioner Grannis, and his administration to develop innovative policy and to implement the commissioners priority and one of this priorities is to move New York beyond waste to a more sustainable material management approach. I'll be going over our solid waste management plans but you can tell by my title here its sort of not your typical solid waste management plan. We are looking at moving towards a more sustainable approach to materials management.

So, I'll start by talking to you a little bit about the planning process that we've been engaged in and then I'll go over some of the key elements of our new plan. Some of our findings in some critical areas and recommendations and then some next steps.

So, in terms of a process, we've been deeply engaged in the planning process for a little over a year. We started out with a number of stakeholder meetings that drew more than a 150 people, some people came more than once. This slide shows you the different types of groups and subject areas that we convened meetings about and that sort of launched our initial thinking and aired some of our early ideas. When we have a full working draft, which we hope will be this fall, we'll follow up those stakeholder meetings with a series of regional meetings around the state where we will present the plan and get some additional feedback on what we found with that initial stakeholder input.

In the interim, we've been working with an advisory group and this slides shows you some of the different types of groups that represented. We tried to get not only the various interests of the state, but also various geographic areas of the state. New York is very diverse, including a county that has more cows than people as well as the biggest city in the country. So, we have a lot of different issues to consider as we go forward.

I also want to say that we did form an initial advisory group of about dozen people who were not initially invited onto the advisory group that have been coming to our meetings and participating. It's really been a terrific and open process. We work through with this group a lot of really critical issues and it's really been a valuable effort in developing our thinking and our approach and in really challenging some of our assumptions. Particularly on the climate and energy issues and how critical this is moving forward. We discussed and embedded many ideas with them and now we're working through what we hope will be a final draft that will slash those ideas out. We're really learning a lot from our advisors. It's been a really interesting balance between sort of trying to bring them along in our vision and also learn from them to inform our plan moving forward.

So, these are some of the elements to the plan what I consider the major elements of the plan that I'll talk about today. Here are some of the other elements of the plan that I am not going to go into detail on today, but just wanted to show you a little bit more of

the breadth of the issue and the flavor of the overall plan. But in the interest of time, I won't go into the details on these items. So, here is my disclaimer; that everything I'm presenting here today is still up for discussion. We haven't gone through final upper level approval and discussion here at the department. This really represents our current thinking based on all the input I've talked about so far.

So, here's our vision: were really looking for a system that encourages better planning, smarter design, more efficient markets, and really geared towards ever increasing levels of recovery. We really want to move from sort of end of pipe, what's the best way to handle this material when it gets to the curb kind of thinking, to more upstream thinking in terms of how do we design things better so that they're easier and cheaper to manage. That means also a different infrastructure and an evolving infrastructure that focuses more resources and facilities dedicated to recovering and recycling materials and getting them back into that upstream design process, and less resources and facilities dedicated to disposal. What's critical and key in this is influencing the design of products and packaging, product stewardship is a critical element, critical policy tool to achieving that; I won't go into detail on that today but suffice it to say it's a critical part of our plan moving forward and I think in progress generally.

I also want to note that this is really…; this plan is really intended to be inspirational. It's intended to set out a vision and a guide post. We will need resources, we'll need staff to do some of the things we want to do, but we see the plan is really an opportunity to build a case for what we need.

So, you can see from this slide that we have lot of goals; these are qualitative goals. We have a sort of a broad view and some big goals here. We'll be working on quantitative goals once we've modeled out the impact of our various recommendations. One of the important things I want to note about our quantitative goals is that we are looking at moving away from recycling or diversion rate as the key metric and looking instead at tracking per capita waste disposal. What we really want to do is eliminate our reliance on landfills and energy facilities. What we should be really keeping our eye on is how much material is going into those types of facilities. So, we're going to be starting to track per capita disposal and use that as guide post in addition to per capita recycling rates and some other measures.

To the point of climate and waste, one of our key findings is waste is a strong contributor to climate change, of combating climate change, to changing the way we manage waste. Terri mentioned methane emissions from landfills are the most direct and tangible source of green house gas emissions related to waste. But production and distribution of products, and packaging is also key. In New York for example, direct emissions from landfills and waste energy facilities is about 3.8 percent of green house gas emissions, which is larger than it is on a national basis. But when you look at the

lifecycle of products and packaging that become waste, the impact is much, much greater. So, waste reduction, reuse, and recycling are all ways of eliminating the impact, the lifecycle impact, of product and packaging that become waste. And so those are key tools to mitigating the finals keys.

So, some of our recommendations on this front are, I'll talk about a little bit in each of these sections maximizing waste reduction, reuse, diverting organics from disposal, maximizing recycling, and converting landfill gas to energy.

I think it's been pretty well documented and Terri pointed out that waste prevention and recycling mitigate climate impacts. I'll give you a couple of examples. A life cycle study on the paper industry found that recycling paper and using recycled paper in production, reduces the green house gas impacts of paper manufacturing two the six times depending on the paper grade. When you manufacture aluminum using recycled piece stock instead of virginal aluminum you save 97 percent of the green house gas emission or you avoid 97 percent of the green house gas emissions, which is a significant impact. Also degrading organics is critical. Terri also mentioned that organic materials generate methane in landfills and what's important to understand is that some organics, particularly food wastes, break down really quickly; in days or weeks. So, if they are put in the landfill, that breakdown happens and the conversation to methane happens before gas capture system can effectively capture the gas. It is leading to some direct discharges of methane and emissions of green house gases. So, diverting organics to systems that don't generate methane like composting or systems that more effectively capture methane for energy, like anaerobic digestions is key to limiting the climate impact of waste management. But until we reach that ideal of not sending any methane generating materials to landfills, we have to capture as much gas is possible.

So, now I'll go through each of the strategy areas and talk a little bit about what we've found in our planning process. I should say we've been looking back over the history of the last 20 years; the state's first solid waste management plan was done in 1988. So, we're looking at essentially a 20 year horizon, sort of trying to learn from that. So, one of the key things we learned about waste prevention is that it does have the highest potential for avoiding environmental and climate impacts. There have been some pretty significant gains but we've also lost some in terms of negative trends. So, in the big picture, we're not really reducing our waste generation. The national per capita waste generation rate has remained relatively constant since 1990 and we think that's true in New York as well. So, the gains from significant changes that have been made by major retailers like Wal-Mart and Target, and in some of the industrial sector have really been off-set or counter balanced by the growth in throw-away products, planned-up selections, convenience products, and things like that.

Moving ahead, some of the things we would like to do is: implementing our executive order. Back in April of 2008, Governor Patterson signed Executive Order Four on state sustainability in green purchasing. It requires the state to really lead by example and set some waste reduction and waste generation goals and requires agencies to report on progress against them. In addition, we want to expand our resources both by the state and local governments dedicated to education and outreach on waste prevention. We want to implement product and packaging stewardships. As I mentioned, packaging and product stewardships are key tools to getting to that upstream element to influencing the design of products and packaging to reduce waste. We think that stewardship provides a really important driver for waste reduction by internalizing the cost of waste disposal and recycling and by making the disposal cost a part of the design equation. Just to mention, quickly a major initiative in New York has been the creation of the New York Product Stewardship Council, which is a group of primarily local government folks but also of some of us in the state and some other stakeholders that formed, really growing out of our planning process to advocate for product stewardship in New York state.

Looking at reuse, one of the great things about reuse is that it provides multiple environmental, economic, and social benefits, to real job generator. For every one job in disposal, there are more than 200 jobs in computer repair and remanufacturing for example. From the social end of things, redistributing usable goods has an incredible social value; getting low cost items to people who need them; getting edible excess food to the hungry. These are really important things .But it often gets lost in the shuffle. In fact, in New York State, solid waste management hierarchy, reuse doesn't even have its own area; it's sort of lumped in with recycling.

So, we see even though there's a significant infrastructure in terms of thrift stores and charities, we see a real potential to expand reuse in the sectors here as well as more generally speaking. Some of our recommendations are to continue to support and promote the reuse culture and the reuse structure in terms of new initiatives to look at different ways we can encourage and incentivize deconstruction and building materials reuse instead of demolition and C&D materials recovery to make sure those materials go to higher end uses. I'm really looking to our planning units which is our local government units responsible for managing waste and materials to develop some new reuse infrastructure. This does not need to be high tech difficult stuff. We have a lot of rural communities in New York that a lot of people bring their materials to a rural transfer station or things like that. Something as simple as setting up a reuse shed at a rural transfer station or organizing a community yard sale counts.

In terms of recycling as Terri mentioned, we and everybody else in the country experienced huge gains in recycling between 1987 and 1997 but since then we've really hit a plateau. Out total recycling rate has bobbed between 47 and 50 percent for the last seven or eight years. Our MSW recycling rate, which is your traditional curbside

materials, has been between 25 and 30 percent. Our program performance has really varied dramatically. For example, if you look at the performance on a per capita basis, our lowest performing recycling community diverts 21 pounds per person per year and our best performer diverts 734 pounds per capita. So, that's pretty wide swing, even though our data isn't complete and accurate, we do feel like this probably a good trend indicator.

Implementation is also inconsistent in different areas. We don't have a lot of public space recycling in New York. A lot of our businesses don't recycle; a lot of our schools don't recycle. These are areas where we really need to focus.

We all know markets are variable, we've know that for a long time. The last year has illustrated it in a most dramatic way with some of the highest and lowest recycling market values ever seen. So, it's clearly a significant issue but there are ways we can work to insulate ourselves from the variability's of those markets and provide some local stability.

In terms of recommendations, we have a lot of recycling recommendations but these are just a snap-shot. There are a lot of different ways we can work to reinvigorate recycling. Building awareness through broad-scale education we think is really important, in part, starting to educate people on the climate and waste connections. Building on our existing infrastructure by improving program performance. If you already have a materials recycling facility, recovery facility, you might as well get as much material to it as you possibly can. So, you should capture more materials through implementing incentives, education, public space recycling, commercial recycling, school recycling, all those things. Better tracking and reporting is really important. I know we are all aware of the difficult issues of reporting and data. Which I won't get into now but we do understand it's critical.

I think one of the key things we've identified is that we need a new framework for moving forward. The 1988 Solid Waste Management Act in New York set the framework to get us to 50 percent. If we want to move beyond waste and get off that plateau, we need a new legislative structure. If we are looking to get beyond 50 percent and we are looking to mitigate the climate impact to waste, we really have to look at organics. They are a really significant portion of the stream, 30 or 40 percent of what's generated in New York state and that's pretty consistent with national numbers. In New York it's about 30 percent of the MSW that ultimately goes to disposal.

There are multiple benefits to recovering organics; not only combating climate change but creating valuable soil amendments, creating jobs, increasing diversion, rebuilding the soil structures of the state and things like that. But one of the challenges in dealing with organics is that there is a lot of different types of organics. It's not a uniform stream

of materials; everything from manure and bio solids to food scraps, leaves and grass. So, we have to look at a variety of technologies and a variety of strategies and the cost of implementing those vary a lot depending on what type of technology you chose and what feedstock you chose.

Some of our recommendations moving forward is again to lead by example in state operations. We are really pleased that our state office of general services has just implemented a composting program for food waste and organic materials generated in any of the cafeterias or vendors in Empire State Plaza which is our biggest government plaza here in downtown Albany and here in our building and all the capital district facilities. That's a pilot program that is intended to be expanded to other parts of the state, so we are really excited about that.

In addition moving forward, we have a lot of facilities in the state that we are already restricted disposal of leaf and yard waste. Through permit conditions, we are looking to make that more consistent across the state by doing it regulatorally or at least ensuring that it is all in every permit. As we develop additional organics recovery infrastructure, we might think about adding additional restrictions on disposal. Again, this is a delicate balance between developing the recovery capacity and restricting disposal so we are going to sort of see how that goes.

Again, in terms of looking at maximizing existing infrastructure, we want to see if some of our yard waste and sludge composting facilities might be able to expand to accept food and to do some pilot projects and do some demonstration projects while we work to generate new resources for the infrastructure that is going to be necessary.

In terms of our work with our planning units and municipalities, we are really going to require them to do a very thoughtful evaluation of their organics recovery options and implement them wherever possible and more feasible.

In terms of waste disposal, we've basically taken a hard look at waste to energy and determined that it is an environmentally acceptable manner of disposal and it should retain its place above landfilling; in no small part because of the climate impact of landfilling and the need to mitigate those more immediately. Despite the fact that landfilling is squarely at the bottom of the hierarchy in New York, elsewhere, it is still the predominate means of waste disposal in the state. One interesting thing that we have seen is that the public sector role in landfill operations has changed over the years. Right now 75 percent of the landfill capacity is either privately owned or operated as opposed to 20 years ago when it was almost all municipally owned and operated.

In looking at capacity, we are doing some assessments of future capacity. There are lots of different variables involved. But if you presume that we are going to continue to generate waste at our current rate of generation, and we are not going to be successful

at moving beyond waste, we have about 20 or 25 years of capacity remaining. Then if you consider our disposal facilities that have acceptance restrictions, those that are under flow control or are otherwise restrict the materials, they're going to take that generator that are in a certain geographic area, that time horizon of capacity goes down to 10 to 12 years. We are hoping of course that we will be successful in progressive reductions in waste disposal and therefore will be able to extend that capacity over time.

So, in terms of next steps, we are working over the summer to format and finalize the draft plan. We are hoping to proceed through internal review in the early part of the fall and then release the draft for public for comment in the late fall, we'll hold some regional meetings, we'll finalize the plan and we'll move forward from there.

So, here is my contact information. We did set up a website for the solid waste management plan. As you can see unfortunately here at DEC we can't set up very simple web addresses like www.newyorkstatesolidwasteplan or beyond waste New York, but you can click through this link and get to our site or jot it down for later.

Adolph Everett: Resa, thank you. We have a couple of questions that maybe you can field now. One question concerns, has New York State considered tracking absolute generation instead of per capita generation as a metric?

Resa Dimino: We don't have a way of determining absolute, we are not tracking generation, we are tracking disposal; I want to be clear about that. We don't know how much waste is generated in New York. We have not done a waste composition analysis that we find dependable. So, we don't have numbers on generation. When we track disposal, based on both reports from facilities, solid waste facilities that handle materials, and transfer stations that export materials, and it is also based on information from municipalities and planning units. We do aggregate that intergrowth number but we feel that per capita is a better way of, sort of normalizing that figure and setting goals moving forward.

Adolph Everett: OK thanks. We have another question concerning how does New York state propose to increase reuse. Is DEC planning to quantify and characterize existing reuse infrastructure and how is DEC planning to increase reuse/repair/refurbishment of reusable durable products aside from product stewardship?

Resa Dimino: We are intending to, hopefully generate new resources through the plan. One of the key elements is to generate some new funding sources so we will be able to provide more funding for materials exchanges, reuse operations, and things like that. In addition, we are going to be requiring our municipalities and planning units as they put together their local solid waste management plans moving forward to take a hard look at reuse infrastructure and to make sure that they are providing what's possible and things

like that. So, it's primarily through financial support and through looking at local government infrastructure and management.

Adolph Everett: OK, on a similar theme, and this is more of a focus on, I guess, the urban areas of the state, since most of New York state's population is in urban areas, how will New York states reuse be brought towards 100 percent of its potential and how do you measure that?

Resa Dimino: We don't really measure reuse because there are so many entities out there and so many different ways reuse happens and most of that is not reported or tracked by the state. Part of the reason we are moving to this disposal metric is because we can't figure out an effective means of tracking reuse in a state as big and as diverse and as New York. With the thousands and thousands of different types of reuse operations out there we don't think we have a good handle on that. I think how we are going to push it in urban areas is no different then we are going to push it in other places. We're going to encourage municipalities to set up infrastructure, we're going to develop some education, we're going to put some money behind it and hope to see some activities.

Adolph Everett: OK, great. We have another question. You talked about a need to develop a legislative package to move beyond 50 percent. Can you comment more specifically on what the state is looking to do at this time in terms of legislation and regulation?

Resa Dimino: We are revising Part 360 which is our regulatory package on solid waste management facilities. That is sort of from an engineering update, it's been a long time since it's been reviewed. But there also may be some policy changes to that as well. What exactly those are has not been completely determined and decided on yet. In terms of new legislation, we are going to be looking at product stewardship for particular extremes, we are going to be looking at product stewardship framework, we are going to be looking at packaging stewardship, and then we are going to be looking for also a broad, sort of update of the New York solid waste management action. In that, some of the key elements, again none of this has been sort of fully vented within the department. But some of the critical things we are looking at is setting new goals, clarifying who is required to recycle, where they are required to recycle, and what needs to be recycled. So, setting some real clear requirements that reflect everything that is mandatory not only by households but in public spaces, by businesses, by schools and by institutions. We are going to be looking to create a list of mandatory recyclable items, things that have been collected by New York communities for 20 years and set some clear requirements along those fronts. Then there is a number of other things that we need to fix that probably are not as relative to people outside the state, so I won't get into too much detail. But suffice it to say, when the draft plan is released in the fall, it will include

an outline of what we think should be included in an update to the solid waste management act.

Adolph Everett: OK, great. Let's take one more question at this time before we turn it over to Sarah. How does New York plan in reducing the waste it has produced and how might this effect the levels of GHD created by the state?

Resa Dimino: Our recommendations on waste prevention were way back at the beginning. Again, we are going to focus on leading by example with New York state agencies. We are also going to look at expanding the resources that we as DEC dedicate to education and outreach as well as municipalities to expand their education and outreach on waste prevention. From a policy prospective, our main objective in terms of waste prevention is to implement the product and packaging stewardship because we feel from a policy perspective, that is a very important driver to change the design of the products and packages that wind up in the waste stream and that is the most effective way of getting at waste prevention from a policy perspective. How will we track that? Again, waste prevention is very difficult to measure. We've been talking about this one for 20 years. One of the reasons why we are moving, just like I said for reuse, one of the reasons we're moving to reduction and disposal kind of metric is because it captures the impact of waste prevention without having to track specifically and develop tools around how to track waste prevention.

Adolph Everett: OK, great. Thanks so much Resa. Now Sarah, we will turn it over to you.

Sarah Weinstein: Good afternoon everybody. I'm Sarah Weinstein with the Massachusetts Department of Environmental Protection. This afternoon I am actually talking to you as a representative of my agency to NEMOA and each of the NEMOA directors actually has taken responsibility for working with NEMOA staff on a particular issue area in solid waste is mine. So, that's the role here so I am more here really from the NEMOA perspective then DEP.

Very quickly, what I am going to talk to you about is a plan that NEMOA has developed after many intense discussions over the last couple of years. I am going to give you a little bit of background about why we developed a climate waste plan, how we developed it, what the plan framework is, what the major strategies are and what we are going to do moving forward.

In terms of background, I can see from the list of attendees that there are a lot of people from outside of New England so I just want to point out that New England states particularly have a very long history of working together as a region to address different kinds of pollution problems. Our governors have set up an environment committee which is essentially is a group of state environmental commissioners, Mass DEP

commissioner and her counterparts in other states, the New England interstate water pollution control. Organizations has been around for a very long time recognizing that water pollution doesn't really respect state boundaries. Our rivers are long and they run from one end of the region to the other. The second interstate organization to be set up is the northeast states, I'm going to get the, for coordinated air use management NESCAUM, which is an organization of the state air program. Also, recognizing that air pollution, as water pollution, does not respect state boundaries.

NEMOA is actually the most recent interstate on the block. This is an organization, the state waste management officials, the members are the directors of the state programs that govern hazardous and solid waste, pollution prevention, and waste site cleanup. Terri already told you what states were involved. It is bigger than just New England. We include New York and New Jersey as well as all the New England states.

Basically, what does NEMOA do? There are really four things, among the many things that NEMOA does for and with states. NEMOA, the most important things for the issue of the climate waste connection is that NEMOA researches issues on behalf of states and working with state officials, develops options for different kinds of policies. NEMOA provides a great platform for states to share information and to develop some of the regional information that Terri presented earlier. NEMOA, one of the reasons it got started was to provide a forum for states to sit down and discuss different policy options for issues of regional concern. NEMOA facilitates those meetings and keeps us on track. Even though sometimes herding cats can be the term that people use for the discussions. Finally, NEMOA has a long history of providing training to state programs and opening that training up to local governments and some of our non-governmental partners.

Why did we prepare a regional climate waste plan? We actually did this in response to a specific question that came in 2007 from the New England governor's environment committee. Essentially, the question was how will all the New England interstate groups programs help to achieve a regional climate change, climate action goals? This question came about as our environmental commissioners realized that for every single state addressing climate change has to be among our absolute highest priorities. Among the other interstates, NESCAUM, as the air program has already been deeply involved in a lot of climate action work. The New England Interstate Water Pollution Control group is focusing mostly on adaptation to climate change. NEMOA, being the group of waste programs, the organization that supports waste programs, we started looking at the climate benefits of managing wastes differently than the way we have been doing it in the past.

To develop the plan, we didn't really invent any wheels. We used the same kind of planning approach that we do a lot of other things. We did a lot of research. We looked

into what is the New England waste generation and management picture. A lot of the information that Terri talked to you about already came from that. We looked at the connection between waste management and product use and product manufacturing and green house gas emissions. We looked at the benefits of different kinds of strategies for reducing green house gases; the potential benefits. We also looked at what our member states are doing in terms of developing solid waste master plans like the plan that Resa just talked to you about. As well as climate action plans, which all of our states are working on.

To do this research, we like to say we rounded up the usual suspects. We contacted people in other states, interstate organizations, federal government, private consulting firms, basically whoever looked like they might have information that would be useful.

From the research, we started out by saying OK, what do we want to see in a plan? We created some guiding principles. We identified some waste management strategies that have potential significant co-benefits for green house gas reductions. We identified options for regional collaboration and we drafted the plan. The options for, and I will get to each of these separately and take a few minutes to do it. FYI, the status of the plan, when the plan went to our environmental commissioners this past March, with a request for review, comments, and hopefully approval to move forward. We view the plan, really as a living document. We think it is something that is going to, and it should evolve over time, as we learn more, as there are better tools developed to make the climate and waste connections, and as we learn more about what particular strategies are really going to be the most effective.

I think what we've got now is a good place to start to start this process, but we're looking at it as really a long term effort. At the June NEMOA directors meeting, we identified some steps that we want to tackle first. We are calling them Year 1 priorities, some of them may take longer than a year, you never know. But it's a place to start.

Guiding principles. The first one is that we think it is absolutely critical to work regionally. Partly because, as Terri mentioned, waste is managed in a lot of ways regionally. It's produced locally and managed regionally. Particularly the New England states in the region are generally small states and we find that by working together, we can leverage our resources and our efforts and make more progress working together than we can individually a lot of times. We want to focus on the products and materials that are going to have the biggest climate impacts, if we can divert them from the waste stream, or as Resa said, keep them from getting into the waste stream in the first place. We want that analysis to be based on an assessment of the full life cycle impacts.

Are we ready to do this in a really detailed way? With a lot of certainty; probably not. I think you heard some in the second webinar about the different tools that are being

developed to do this. This is something we can start doing now based on the information that is available and this is a good place to think about how our plans and our ability to target things is going to improve in the future.

We want the strategies that we work on to minimize energy consumption and the green house gas emissions that are coming from waste. We don't want to set up strategies that are going to use more energy to implement than the current practices, for instance, or increase the emission of green house gases.

Another guiding principle is avoid unintended consequences. We want to try to avoid strategies that are going to create more pollution basically than what we are dealing with now. We will also want to seize opportunities. Particularly at this point, there are a number of opportunities as we are [audio disturbance; inaudible] working at closed landfills, closed waste management sites and Brownfield's sites in the region for sighting renewable energy in ways that can help us reduce our dependence on fossil fuels. We want to encourage our states to consider waste management issues as we are all developing plans for adapting to the inevitable changes that are going to come as the climate warms.

Strategies. I could spend a lot of time on each of these. There a number of them, but in the interest of keeping this on track and trying to save some time for questions, I am going to just run through the list and give you a couple of examples so that you can get a flavor of what we're talking about.

The first strategy I think fits pretty nicely with what Resa was talking about, but we want to work regionally to minimize the life cycle and green house gas impacts of products and wastes. There are some great opportunities to do this. There may be a regional effort to work on framework extended producer responsibility legislation. Which we actually have some experience with in the mercury area where NEMOA developed model legislation then the member states have worked with their legislatures to adopt, in some cases all of it and in some cases part of it. But the states are basically using the NEMOA work to provide a framework to talk to legislatures and to talk to stakeholders and made progress in that area.

Increasing waste reuse and recycling. Something that came through loud and clear from Resa's presentation, I think this is important for all the states in the northeast. There are a lot of things that NEMOA has been doing and can help all the states do to continue these efforts. By way of example, NEMOA already has a group working, I think very constructively, looking at particular materials in the construction and demolition waste stream. Right now we are focusing on gypsum wall board to try and figure out how, as a region, we can set up policies that are going to result in more of the this material being pulled out of waste stream, diverted from waste, and hopefully set up or expand

regional markets so that the material that's pulled out is actually recycled. Someone that I work with has a theory that if we create a big enough pile of stuff, someone will figure out how to use it. So, I think this bullet is really about how do we create the piles of stuff and how do we facilitate the reuse and recycling development, options to be developed.

Reducing methane emissions from landfills. I am not going to spend a lot of time on that. I think other speakers have already dealt with it. But there is a lot of work that NEMOA can regionally to share information and they involve not only capturing methane and using it to run generators but also looking at other materials in the waste stream that contribute to methane, like food waste for instance, organics and figuring out how to divert those so they don't create the methane.

Increasing public awareness. NEMOA has a long history of helping states develop information materials and I think this fits in with something that will come up in the next presentation about work that is going on, on the west coast and I think everyone is interested it that.

The top bullet on this slide is probably what I would have to say is the biggest ticket item which is working with everyone who is working to improve data and methods of estimating the climate waste connection. I think that the tools are being developed and the data is beginning to be available. But this is the data that we really need to be able to develop a plan that can identify specific waste streams that are important for the region and identify specific actions that the states will commit to do to get that material out of the waste stream and to get the green house gas benefits of that diversion. When the data and the methods for either gathering the data or estimating the data are more available, there will be more development on the plan.

We have already mentioned facilitating renewable energy development at waste sites. There are a number of things that are underway to do that. Promoting green cleanup at hazardous waste sites. In other words, running your groundwater pump and treat systems so that they minimize the use of fossil fuels. In my own state, we've actually got one groundwater pump and treat system that is going to be running for a long time that's now running on wind power.

Finally, improving our capacity for planning for disaster; managing the debris that's generated by big storms and other kinds of disasters. We've learned a lot from New York's experience in dealing with the aftermath of the 9/11 disaster in terms of the kinds of infrastructure that would be really helpful to have available before the disaster happens. So, that you are not scrambling quite as much to figure out how to avoid putting all the building debris into landfills and other disposal facilities. Since 9/11, there have been a number of floods in the region and the issues are they vary is size but they are basically the same issue.

Those are they types of strategies that we've developed. As I mentioned, in June the NEMOA directors identified what we are calling near term priorities, I guess is a better word for it than year one. Year one implies that we'll actually be done in a year and I hope we are going to be starting these and making significant progress getting done, nothings for sure.

The data issue is the very first bullet. I think that we're all agreed that that's a really critical step and really needs to be further developed to support further development of this plan. I think there is a lot of training that can be done, not just for state staff but municipal staff, solid waste managers, people who are running the recycling and disposal facilities, and other players in the solid waste management business about what is the carbon footprint of the products and the wastes they are managing and how can they help divert this material from the waste stream.

A very hot topic in a number of our states is the potential use of discarded materials for which recycling and reuse isn't available. The residual materials that are left when you divert what you can from the waste stream and using them to generate energy, possibly a little more efficiently than our existing municipal waste combustors do now. There are some regulatory implications for doing this. I think it would be really helpful to have some conversations among states about how they are handling all the great new ideas to gasify waste, use paralysis, and a lot of new and not so new technologies and to see what sort of, this is where I think facilitating the interstate discussions can really help us come to terms with at least a good understanding about how we are all dealing with these questions.

I mentioned before we are already working on a regional strategy for extending diversion of C&D materials. The work on gypsum wall board is already, I have to say, pretty far along. It has advanced a lot in the last year with a lot of effort from both NEMOA staff and state programs. The next two materials in that waste stream that we want to target are asphalt shingles and waste wood to see if we can improve the diversion rates for those.

There is a lot that NEMOA can do and wants to do in working with states on diverting organics from the waste stream, whether it is composting, anaerobic digestion or perhaps something new. Developing public information and helping us all with messaging has to be a near term priority because all of the above strategies need communications. Finally help the states look at waste sites, closely look at waste sites and Brownfield's and figure out what the barriers are for redeveloping them for renewable energy facilities. Which could be wind, could be solar, and actually in some cases might even be anaerobic digestions facilities depending on priorities and where we are going with all of this.

Next steps. Seeking funding is always the first thing. Clearly we are going to need some money to support all this work and to some extent, the money that we can find is going to help us decide which of all those strategies we are going to put more effort into or less. But we want to make progress on all the strategies as long as we can.

Collaboration, this is a huge part of what NEMOA needs to do. There are many partners here and the ones listed here are in no particular order. EPA clearly is moving in the direction of getting much more deeply involved both from a regulatory perspective and also from a technical and possibly financial support perspective. There are many non-governmental organizations. Just to mention a couple that are really important in the northeast, the Northeast Recycling Council, which is an organization of state recycling programs and also private organizations that work to promote recycling in a variety of really important ways. The Product Stewardship Institute, which is another organization of a wide variety of players that is working on establishing product stewardship and shared responsibility for managing waste and diverting different kinds of waste from the waste stream, are just two examples. NEMOA has always assisted the state member programs and so that bullet is sort of a given, and organizing training is really something else that this organization does.

The action plan is available on the NEMOA website and that's it. So, questions?

Adolph Everett: Thanks. To save some time, we'll just take one question now. Does NEMOA encourage uniform methods of quantifying and characterizing the discard stream in the member states, so to get more of an apples to apples comparison. Can you comment on that?

That's a really interesting question. NEMOA is starting, really at a step that could be a precursor to having a lot of good discussion about that. We are starting by actually pulling together an inventory of the different ways states define, you know, every state defines recycling differently. There are a lot of common materials, but people look at some different materials. Some states measure one thing then not another, they measure things differently. We've actually had private sector waste managers come to us and say, you know, since waste management is regional, it would be easier if there were some regional definitions that we could work with. So, I think that is something that is definitely on the list of things to have some serious discussions about.

Adolph Everett: Great, Sarah thanks again so much. Viccy, we will move on to you now if you are ready.

Viccy Salazar: Thank you very much Adolph. Viccy Salazar with EPA Region 10. Like Sarah, I am here representing a broader group today and I am representing a group of governments that have been working together to really address how do you integrate materials measurement into all the climate conversations that are happening and quite

frankly swirling around us at an ever increasing rate. So, I will talk a little bit about what we've done, on how we are working together in the workgroups and some of the really preliminary things that are bubbling up out of these workgroups. I want to say upfront that this is a working process and we are kind of no means done and these answers are not final answers, so we still have a lot of work to do. I'll let you know where we are at.

First off, I just want to say that when we talk about materials management, we are really taking about how do we use it and reuse resources more productively throughout their entire life cycle. We are talking about kind of everything from how do we create a sense for design to operations to kind of use of waste management and to making sure that is a close loop back to the end. We really want to do two things. One is to minimize the amount of materials that are involved, particularly virgin materials, and also minimize all the associated environmental impacts. In this case we are looking at those green house gas impacts but we have to really note that when we are talking about materials management it is not all about the green house gas impacts, it is a lot of other really important associated impacts with really effectively managing the materials and products that go through many of our hands as governments.

When we started out, we started kind of looking at this picture that you see in front of you, and we said, well we're looking at green house gases. All they are talking about is landfilling piece and the methane emissions and a really minimal part, we started look up [inaudible]. We are not really talking about that when we talk about materials management. We are talking about the extraction, the manufacturing, the use, benefits of recycling, benefits from composting. So, our kind of goal was to expand the view of what we were talking about when we talked about kind of end of life management and waste management from just that very small slice of landfilling to kind of the whole life cycle so that we could really get all the associated benefits.

Next we actually had this very conventional view and some of this is probably overview so we just want to let you know some of what our thinking was. We said, wow, you know, as you will notice on this particular slide, and I have to say this an EPA graph so it is was actually developed by my own organization. Waste management is not even on the list and so when people are looking for opportunities and strategies to reduce their green house gas emissions, it didn't come up as an opportunity. The first webinar actually, where Adolph actually talked, that we all saw an earlier version of this slide and said wow, look at all those opportunities that all of the sudden are presented to us, but how do we actually achieve those opportunities in an effective manner? We started talking to all our stakeholders and colleagues and everyone was having kind of the same set of thoughts, when we were saying, well we need to be doing this and we should be doing this, but it is not really in anybody's, kind of, performance requirements. It's not an official part of very many people's jobs and how do we bring people together so that we can most effectively coordinate our work in our programs so that we can

achieve some of the benefits like you see on this slide here. I know this is kind of familiar, hopefully to many of you here familiar information now, but to us it was kind of a really big wake-up call to say, wow, look at all these opportunities. We are really in some ways talking the talk, not correctly. We are not really communicating the environmental green house gas benefits of all this work we are going already, many of us, and that we have been working on, I think as Sarah said accurately, at least for 20 years if not longer. How do we rephrase this so instead of having all our trends be going downwards and I think that is pretty common right across the country; per capita generation is going up, the amount recycled as a percentage is going down, the absolute level of generation of waste materials is going up. How do we address all of these problems in really a holistic manner given that we only have our existing set of resources.

So, what do we do? We decided that we have really great friends and allies all up and down the west coast and that together we could really figure out how to do this more effectively than any of us could do it ourselves. As all of us know different levels of government really have different roles within the waste management policies and the way they actually manage the waste. So, a local government could do one thing, a county government is another, a state government is another, and federal government a different role yet. So, we said lets all get together and see what we can do to identify areas of collaborated effort and strategic actions through just green house gases through waste prevention, recovery, and disposal. So, we kind of made it pretty broad and what we did was first got educated, and we actually had a series of webinars that hopefully many of you have already listened to. I think that these webinars, the series that Regions 1 and 2 are putting on, which by the way, thank you very much for inviting me to speak, really are kind of a second layer on top of that initial series that we did last year. We brought people together to make a plan. We brought 56 government reps from all up and down the west coast together to work together on developing a plan. Those 56 government reps developed a joint statement, which I will go into basically saying, well these are kind of the key issues we need to pay attention to. Then we developed working groups to work together on what these core issues are.

Our joint statement. We identified five primary actions that all types of communities and agencies can use to reduce green house gas emissions associated with materials management.

First was we wanted to incorporate materials management into climate change accounting and inventory methodologies. Was really the thought of what you measure is what you get. In the beginning, we are not measuring at all and I mean its not even in our inventories. As we have one group that is specifically focused on making sure that local that government protocols and inventories and accounting, like those initial pie

charts that you saw, are actually reflecting the potential benefits of materials management.

Second, we realized we needed to learn how to communicate more effectively. I think we have gotten better over the last year, significantly better. But we didn't even know what to call ourselves when we started out. Were we climate and materials management, were we climate and waste, were we talking about recycling and how did we start to create that terminology so that we could effectively communicate with others in the field. Whether it be the waste management field or the climate field, and also those people who are making policies and programs. How do they know what to look for when they're looking for kind of advice and help.

Third, we needed to develop a research agenda. What are those things that we really need to know more about because we really don't know enough yet.

Fourth, we needed to prioritize materials and material management actions for immediate implementation. One of those things that we could do today, because of one of the real benefits of materials management and is driving to address climate change is it doesn't take huge infrastructure changes. We don't have to figure out how to change all our electrical generation infrastructure to address materials management. We don't have to create new road systems and new transportation systems. What we do have to do though is change the way we behave. That might actually be harder in some ways than changing some of the large infrastructure things, but if we can do it, it's much more immediate. The opportunity to do change is to have an effect tomorrow and make those changes today is there for us.

The last thing is we really wanted to advance product stewardship as a tool to address climate change and really get away from the thought that government needs to fix this on our own. We needed to really engage with all the other partners, the industry partners, the waste management partners, the NGO partners, academics and say who is in the life cycle has the ability to influence this and create the incentive to motivate those changes we are talking about. So, following up with that, that actually happened in September of 2008. We are coming up on just about a year later and where we are is the work groups are actually working. They are working together to kind of achieve some of these things.

I want to talk really briefly about what each of the work groups have set out to do. Then I am going to talk a little bit about, in some summary, about kind of what are the outcomes today.

The communications work group, they are working to develop an outreach campaign, consisting of both consumer behavior and at influencing programs and policies. Really noting that those two things kind of inter-twine. Some of the slides you are seeing used

today are actually directly out of some of the new program policy outreach and communications kind of PowerPoint's that they have developed. They are still kind of in the process of developing kind of public education and the top ten themes in terms of materials management that they can use.

The materials management work group is looking to identify and develop immediate implementation strategies. Particularly ones that have a high opportunity for significant green house gas reductions. One of the very first things they did was go and do a waste composition, look at the waste composition studies of the west coast states and say, well what are the materials showing up in our trash and in our landfills that have a high green house gas reduction potential and let's focus on those rather than saying let's deal with everything.

We actually have a green house gas work group that is looking at state and local inventories and working with California and the ickly [inaudible; not clear] protocols to really integrate materials management directly into those systems and tools so that it becomes automatic. You don't have to come listen to this webinar for it to become part of your tool, or have it be integrated into your systems. The minute you pick up those tools that are being broadly used right across the United States you automatically get the information and the tools that you need to actually include materials management. So, that was one.

The second is really to work with, on the EPA WARM model and to make sure that things like composting and organics, recycling, are adequately reflected in that tool so that we can really understand and quantify what those green house gas benefits are.

Fourth, we have the research work group. They are working to develop a research agenda. They are actually pulling stakeholders and experts from all across the country to say, well what are those things we really need to know more about. One of those things that we really know enough about now that we can move forward our some policy options.

A couple more work groups that we have. One is the product stewardship work group. They are looking to establish, harmonize state product stewardship and EPR kind of framework policies and really to help make that linkage between some of those product stewardship framework policies and also the reductions in green house gases. Because right now those, up until recently, those conversations are happening kind of in parallel but not together. I think that a lot of those governments on the west coast, they're seeing that if they can link the green house gas reduction needs to the whole idea of product stewardship or extended service responsibility frameworks, that not only are you going to achieve kind of increased collection of recycling, but then the same communities or states can also use it to achieve their green house gas reduction goals.

Then last, we have kind of the group we call the Alaska work group. But really its focused on rural issues because we are finding that given kind of we have like significant distances that occur on the west coast. How do we implement some of these kind of recycling or waste reduction or product stewardship policies in a community that maybe the closest recycling station is an hour, two hours or three hours drive away, or maybe it's a plane flight away. So, this is kind of reflective of what's happening in Hawaii, where we are really having to pay attention to those distances and the remoteness of some of these communities to actually address their materials management from a green house gas perspective.

Key findings. A couple things. The basic thing we found is that our old systems are not really working and they are not going to work to get us to where we need to go to really address green house gas reductions and achieve the full benefits out of materials management.

Some of the key finding we found is that WARM is a really valuable tool and that its used broadly across the United States and quite frankly across the world. But we still need to continue to improve it and to make it a really robust tool.

Current inventory and protocols under-represent the impact of effective materials management. This shouldn't be a surprise to any of you. Emissions accounting under-represent the impact the U.S. has on green house gas emissions. Basically we consume more than we produce. I think this is a really important one that most inventories look at kind of end of pipe emissions. So, if we are taking the inventory from the state of Washington for example, we count in those emissions, the impacts that our business associate Boeing has on green house gas emissions. But what we don't count for is all those things that we are buying and bringing in. Because we actually buy in a lot more things in Washington state than we produce. So, how are we accounting for those emissions that we buy and should we be responsible for those emissions because Washingtonians are the ones that actually produce those emissions. What we're calling is consumption based accounting, and David [inaudible] from the state of Oregon, who I think spoke in an earlier webinar, actually has been instrumental in helping us to evolve our thinking to say how do we account for what our input into the state are, not just for what is produced in the state.

Then the last thing is, measurement really is the key to having materials become as important as energy and transportation in emissions reductions policies. All of us I am sure are really aware of the energy bill that's floating around congress right now. How do we make sure that materials management opportunities and really incentives can be used to achieve the green house gas reductions that we need to achieve to get to our national goals.

Other kinds of findings that we found is that more research is needed; that we don't really know all the answers. I know that is not a huge surprise but that we really need to find all the answers but at the same time, we can't wait for all those answers to implement our policies. We need to make sure that we have enough information that we know that we are going in the right direction and that we don't have unintended consequences but not wait until information is 100 percent. Because if we wait, we're losing some really significant opportunities to address some of the low hanging fruit that we know is good for the environment and good for green house gas reductions.

Concerting education and communication are really critical tools for success. That sticklers don't understand the potential benefit. Even after a year, I sometimes am surprised, even in EPA that I go do this presentation or a version of it, and people are like wow, I didn't really know. It's not that they are not supportive, they just really don't understand or are used to looking at climate change or green house gas kind of from one lens. We've helped them transition from say that there's another lens for looking at green house gases and our opportunities to address green house gases and it's not a better lens, it's just a different lens and it gives us a different set of opportunities by looking through that lens.

A second is that there is a kind of competition that exists between the traditional accounting and how the systems based accounting, which is what we are calling the product based kind of look that was on the second pie chart. We need to be really clear that we need to work together to achieve these benefits and that we don't want to set ourselves up as kind of, as in competition with kind of our air programs or our transportation programs as to say we need to focus all of the attention on materials because that actually doesn't get us to our goals either. What we really need to do is to understand their perspective and help them understand our perspective so that we can jointly identify what are the best opportunities for both short-term and long-term gains.

I just want to say that education and communication really is kind of a barrier to implementation on programs. If people don't know how to say and kind of know the information and we don't know how to communicate the information effectively, then the programs that are most beneficial won't be implemented.

Finally I just want to say and reiterate that the old tools aren't sufficient and that we don't have all the answers for the new tools. But that really, suffice it to say, the voluntary programs and the way we've been approaching it now probably isn't enough and that we are probably not going to be able to get kind of all the way there by asking for partnership without putting in financial and potentially regulatory incentives to encourage people to behave in way this is best for the environment. We really need to explore and some of the policies we are in the process of exploring, kind of some of the policies like aggressive recycling and composting and making that mandatory. I know

that there are few communities around the country that have done that already with pretty significant, positive results. Producer responsibility and product stewardship and what are opportunities for having manufacturers be responsible for the recycling and management of the end life of their products and how might that change the products themselves. Looking for zero waste and 75 percent to 95 percent recycling goals, not just saying we want to get to 35 percent or 50 percent but really we need to kind of get the whole way there. Looking at products standards and labeling so that we can have informed consumers and that we can make choices ourselves up to our own purchasing power within our organizations to buy better products. Then both leveraging the purchasing and the environmental preferable purchasing.

We do need to build some capacity and infrastructure. Because if all of the sudden we are getting a whole bunch material back, then we, I don't think we have infrastructure in this country right now to manage it kind of if all of it starting coming back tomorrow.

Then finally I mentioned this earlier, addressing high embedded energy materials in landfills. I just want to give you a list of the ones that came up in our evaluation, construction demolition debris, these are not in order necessarily, organics, paper, metals, plastics and carpet. So, those are kind of the ones that came up that if we really paid attention to those, we could make significant achievements in reducing the high embedded energy materials and reducing the green house gases associated with them.

What are we seeing as kind of our challenge going forward within the west coast forum? Really, I say the most important one is how do we rebuild, strategic, and take advantage of the effective materials management policies and opportunities within not only the forum itself, but all the governments that are participating and how do we integrate that effectively. How do we support each other, kind of on the west coast basis? Well still supporting others and kind of organizing to act nationally.

How do we be transformational as we're saying that the old systems won't work and that probably means that incrementally changes aren't going to get us all the way there either.

How do we learn from each other and be information and not spend all of our time being informed because you know it takes a lot of time to get educated. How do you balance the kind of act with the learn to act? How do we fund the work and most organizations don't have dedicated funding to deal with climate change as it relates to materials management at this stage. We all have recycling budgets and waste management budgets, but we are not really being funded to look at the whole materials management picture. Then how, as a group, lead in that value nationally so that these conversations, we all have them together. Because quite frankly we don't see that the west coast is any different than the east coast or in this case the northeast or the midwest, that we all

need to deal with these issues together and when one of us figures out how to do it, that we should all learn from each other.

So, in closing, I'll just say that, we are working together. There are three contacts on there. Dana Warren is actually the lead for EPA Region 10, I am just filling in for her today. So, you can reach her directly if you have questions about, from a Region 10 perspective. Region 9, which is out of San Francisco, Shannon Davis is the contact and either of them can help you if you have questions. You can also reach me, Vicki Salazar. I've put on there kind of a link to our website, which has a lot of information and also the three webinars that I talked about from last year. I just want to say that even though they are now a year old, I still think the information in there is still extremely relevant.

So, finally in closing I just want to say that we realize that we don't necessarily want, as you go to forming on the east coast region, necessarily have to go off on your own. So, for where it makes sense for you to integrate with the work groups that we already have going, we really welcome that. Jerry Wise, Irene Bolton and Daryl Carpenter, all who are working on this webinar will actually be sending you a message so that you can find out how to participate in those work groups. So, with that, thank you very much and I'm available for questions.

Adolph Everett: Viccy, thanks. We have time for just a couple of questions and kind of a good segue to what you were just talking about. The work groups like you described, like what types of folks are on them and how will the progress toward their goals will be tracked?

Viccy Salazar: Sure be happy to. So, the people that are on the work groups are primarily government and only governments can be voting members on the work groups. But we actually have some not for profit and kind of private sector participants as well who are providing input and information into the work groups. We are actually having a meeting in October and I think the date is October 23 and 24 but I think there is a little hesitancy about those dates still. But we will be coming back together and each of the work groups are individually tracking their progress towards the work groups. Then we also have quarterly meetings with all the work group leads who are sharing information with each other and kind of making sure that they are kind of all on the same trajectory.

Adolph Everett: OK thanks. Another question we have regards the concerns the tracking disposal. Seems like you are able to track per capita generation. Do you have that data available to you to track? It sounds like a little different from what New York state was doing.

Viccy Salazar: Well each of the states track it individually and it's not all tracked exactly the same. In the materials management work group, what they did is that they had representatives from each of the states and they worked together to normalize the data so that they could kind of evaluate the differences and then they put it into a table and then pulled the information out. They do all track per capita generation, kind of the absolute generation and then the recycling rate.

Adolph Everett: OK thanks. There is another question for you. Do you believe that buildings created using the protocol produce levels of GHG?

Viccy Salazar. Yes. I mean the short answer is yes. I think that helps but again I think it is going to take a variety of tools to effectively kind of get where we need to go. Clearly lead has some very significant benefits both in terms of energy and also the material components that come with that.

Adolph Everett: Great thanks. At this time we just ask Geri, are you there?

Geri: Yes, I'm here.

Adolph Everett: Just wondering if we have time to open up for the other panelists, I know that we are a little bit behind.

Geri: Well, I think we should wrap it up and what we will do is we'll collate all the questions that we were unable to get to today and see if we can get a response from our speakers to some of those questions and then we'll follow-up and send them out to everyone who has been participating on today's call. But I think we should wrap it up because people probably have other places to go.

Adolph Everett: So, very quickly, Terri, Lisa, Sarah and Viccy, thanks for the interesting discussion. Sustainable Communities have provided us with the latest work that is being done on both coasts of the country and we are sure that similar things are happening elsewhere. We hope this meeting, to the audience, starts you thinking about what's happening in your state, your community, your organization. We would like to capture the energy generated from these webinars and we are really interested in finding out if participants on today's call will be interested in continuing this dialog. There are two ways to do that. You can respond to the survey that will pop up at the end of this webinar or send a note to the Sustainable Communities mailbox and the address is on your screen Region 2.sustainablecommunities@epa.gov. We have all learned a lot from doing these webinars and based on the feedback we receive, from the evaluation of the series, we've learned that there is an interest in learning more about this topic. We have also found that some of the audience is interested in hearing about tools for measuring climate impacts, and how to integrate their waste management practices into their climate plans for their own organization. We would also like to note that this first webinar

series is the first track of a webinar series titled stable communities. Sustainable Communities webinars will deliver a webinar curriculum on key sustainability topics for local governments and community leaders. In a couple of months you will see announcements for additional webinars covering topics such as greens construction. We hope that the climate and waste section has provided some good learning opportunities and we certainly welcome your feedback on this topic as well as your ideas for future topics for promoting sustainability in your community.

Geri: So, thanks and I just wanted to make sure that people know the email address is really Region2 sustainable communities@epa.gov. You can send us any questions or follow-up you have. Also want to thank the speakers, they were excellent, and I learned a lot from them and also for the audience who has provided a lot of thought provoking questions and things for us to think about.