NEW JERSEY CLEAN AIR COUNCIL PUBLIC HEARING

REDUCING THE IMPACT OF FOOD WASTE ON AIR QUALITY AND CLIMATE CHANGE

(MICROSOFT TEAMS & IN PERSON)

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New Jersey Department of
Environmental Protection
401 East State Street
Public Hearing Room
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Reported By: Debra Stevens,
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CO-CHAIR CONNOLLY: Welcome, everyone. Good morning. My name is Maria Connolly and I represent the NJ Department of Community Affairs on the NJ Clean Air Council. I am currently the Chair of the CAC and the Chair of this year's hearing on food waste, along with my Co-Chair, Steve Milgrom from the NJ Department of State, Business Action Center.

Before we get into our topic today, I would like to recognize my fellow Council Members that are here in person and virtually, particularly my fellow Vice-Chair of our hearing, Steve; and Rick Opiekun, the Vice Chair of the Council.

I also would like to recognize the DEP staff that work tirelessly every year to assist us with planning for this annual hearing: Frank Steitz, the Director of Air Quality and Radiation Protection and his staff, especially George Berdomas, who helps keep us on

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track, and did not get angry at me when I sent him like 100 Teams messages in the last two weeks.

In addition, I would like to thank Ky Asral and Emily DeMaio from the Bureau of Sustainability, Helaine Barr from the Bureau of Climate and Clean Energy, Dana Lawson from the Bureau of Recycling and Hazardous Waste, and Seth Hackman from the Bureau of Solid Waste Planning and Licensing, who all assisted in helping to prepare the Council for this hearing.

Quick background on the CAC: The CAC was formed in 1954 and serves in an advisory capacity to the DEP on air quality matters. Every year we hold a hearing on a topic of interest and invite subject matter experts to participate, with the goal of making recommendations to DEP.

Today's hearing is entitled "Reducing the Impact of Food Waste on Air Quality and Climate Change." And I just want to say that I'm personally thrilled

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to be chairing this discussion on food waste, a topic I'm deeply passionate about as a land use planner. One of the goals of land-use planning is to create sustainable communities and reducing waste promotes a more sustainable food system.

As you know, millions of tons of food are discarded every year, representing a colossal waste of resources. But beyond the ethical and economic concerns, this wasted food decomposes in landfills, releasing greenhouse gas emissions and other emissions. The link between food waste and climate change is substantial and we are going to learn more about that today.

Today we are going to delve into this pressing issue and explore solutions that will reduce our environmental footprint. The good news is, the problem is not insurmountable. We have lots of experts here that are going to help us with these recommendations. And by

working together, we can develop innovative solutions to reduce food waste across the entire supply chain from farm to table.

We don't normally hear that expression with regard to food waste but it is true. New Jersey, we are already working on solutions. As many of you know, New Jersey has taken many legislative steps already to reducing food waste emissions, with the 2017 law aimed to cutting the state's food waste in half by 2030 and then the Food Waste Recycling and Food Waste-to-Energy Production Law -- a mouthful -- enacted in 2020, which tackles food waste generated by businesses. DEP is really working hard to implement these laws but there is still more we can do.

We are seeking specific recommendations on the following issues: Policies, best practices, control technologies and funding opportunities in each of the categories shown in EPA's

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revised Wasted Food Scale. This hearing has brought together a group of diverse stakeholders that will help with us with that today.

The Clean Air Council is especially honored to have Assembly Speaker Craig Coughlin participating today as well. We are going to hear from all their perspectives, explore potential solutions, state-of-the-art strategies and chart a course of action to make our food system more sustainable. I think we can work collaboratively to find these solutions that will benefit our environment, our economy and our communities, and I look forward to a productive discussion.

With that as background, let me hand it to my Co-Chair, Steve Milgrom. He's going to provide you with a brief overview of the format of today's hearing. Thank you.

CO-CHAIR MILGROM: Thank you, Maria. Here is what is going to happen.

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Now I am going to introduce you to the Clean Air Council and I am going to talk about some etiquette and some housekeeping that we are going to have for this hearing.

I want to thank the Council. This is a great group of people who really provide a valuable resource to the State of New Jersey and, really, to our planet.

I will introduce the Council. Representing the Department of Community Affairs, you met Maria Connolly, our Hearing Chair, our Council Chair. She does it all. Thank you, Maria.

Representative from the Department of Health, Dr. Richard Opiekun, who as Vice Chair has done invaluable work. I appreciate your advice for me today.

I am from the Department of State. I am Steve Milgrom, Business Action Center.

From the Department of Agriculture, Timothy Fekete.

From the New Jersey State Chamber

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of Commerce, our anchor of this Council, Michael Egenton.

From the New Jersey Society of Professional Engineers, Toby Hanna.

From the New Jersey American Industrial Hygiene Association, Dr. Robert Laumbach.

From the New Jersey Association of Counties, Allen Weston, who was our past previous Chair. I appreciate his efforts.

From the AFL-CIO, Adam Neuman.

From the public, Kim Scarborough.

Also from the public, John Valeri.

Dr. Leonard Bielory, thank you for all you do.

From the public, Sharon Brown.

Now I will go over some rules that we hope we can follow. All participants, except the presenter, will be muted during this presentation. If you have any technical questions -- say you can't see the screen, you can't hear -- use the chat function and the moderator will help

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you with that. Do not use the chat function for written comments.

You have until April 30, 2024, to provide the Council with written comments. Please do that and do not use the chat for any written comments. The written comments will be sent to the DEP Clean Air Council, 2024 Clean Air Council hearing.

Now for my housekeeping announcements. Out of respect for the speakers and other attendees, please either turn off or place your phones in silent mode. If you need to take a call, please leave the room. You can exit through the door you entered.

Only Council members will be permitted to ask questions of the presenters and should turn on their cameras when they are speaking.

Regarding the format of the hearing, the invited experts listed on the agenda will each give a 20-minute formal presentation, including questions

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from Council members. There will be a verbal -- and I will hold up a sign for a warning at three minutes and one minute left in your presentations so that we can keep things running smoothly.

Public attendees are encouraged to provide comment at the end of the hearing. If you plan to address the Council, please sign on the list near the door through which you came in. Each person will be allowed a maximum of three minutes to speak. You may also provide -- public attendees are encouraged to participate.

If you plan to address the Council, sign in on the list near the door through which you entered this morning. Each person will be allotted three minutes to speak.

You may also provide written comments to the Council after the hearing via email until April 30th. Instructions for providing comments may be found on DEP.NJ.gov/CleanAirCouncil/2024CAChearing

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We have reserved this room, this hearing room until 4:30. If a large number of persons want to testify orally and if any, in person, have not testified by 4:15 p.m., those who can't be fit in prior to 4 p.m. please submit written comments to the Council. We will review them.

After the end of the invited speaker presentations, we will advise on the number and order of those who have additionally indicated an interest in providing oral comment.

We will adjourn one hour for lunch. Public guests may use this opportunity to get food from the cafeteria or from the nearby food establishments.

A transcript of this hearing will be made available on the Clean Air Council website at State.NJ.US/DEP/CleanAir several weeks after the hearing. The hearing report with recommendations made to the DEP Commissioner will be available on the

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Clean Air Council website later this summer.

Thank you all and I look forward to a really productive hearing.

CO-CHAIR CONNOLLY: Let's get started then. Our first speaker to kick off our meeting is Paul Baldauf. He serves as our Assistant Commissioner for Air, Energy and Materials Sustainability under Commissioner LaTourette.

Paul is responsible for the management and oversight of five divisions: Air Quality and Radiation Protection, Air Enforcement, Climate Change Mitigation and Monitoring, Sustainable Waste Management and Waste and Underground Storage Tank Compliance and Enforcement. He also serves as the New Jersey State liaison officers at the Nuclear Regulatory Commission and is the state's Commissioner to the Atlantic Compact Commission for Low-Level Radioactive Waste.

Paul has served as Assistant

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Commissioner of the Air, Energy and Materials Sustainability since 2016. Previously he was Director of the Division of Energy Security and Sustainability, responsible for the oversight and operations of nuclear engineering, environmental radiation and X-ray compliance. He also oversaw the Bureau of Energy Sustainability, which coordinates with the Board of Public Utilities on environmental aspects of the State's energy portfolio and led the Department's sustainability initiatives.

A career DEP employee, Paul joined the department in 1987 as an engineer in the Water Quality Program. He moved to Radiation Protection and Release Prevention in 2003 and rose to the post of Director of Environmental Safety and Health in 2010.

Paul holds a Bachelor's Degree in Mechanical Engineering from Penn State University as well as Master's Degrees in Civil and Environmental Engineering from

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Rutgers University and in Homeland Security from the U.S. Naval Postgraduate School. He is a licensed professional engineer in New Jersey, Pennsylvania and New York.

Thanks, Paul. Come on up.

MR. BALDAUF: Good morning, everyone. Thank you for having me here today. The Commissioner sends his apologies. He is actually taking a vacation, which is certainly well deserved. I will do my best to kick off this year's hearing.

As Maria went along with the structure and groups I have under me, the most recent reorganization, which I think we are working on two years now, the Commissioner's focus for it was really historically, I am sure everybody knows this, we have always fought the siloing problem we have in the department. We have so many people and so many different groups doing very similar things and maybe not speaking to each other.

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This was an opportunity to bring in sustainable waste with our other sustainability groups, with our climate change, and get everyone on the same page. The Commissioner was very excited when we brought this topic up to him how many months ago. I think we gave him three and this is the one he clearly wanted to pursue.

Looking forward throughout the day to see what great ideas are brought up, to me, I am fairly new to this from the sustainable waste piece of it. There is a lot of moving parts here, there's a lot of things that need to be done. I think Mr. Sondermeyer told me before this morning that this is great, but a lot of things need to change. There is a lot of work that needs to be done here. I think we are all looking forward to today's interaction and the report coming forward.

So the Clean Air Council is a shining example of how we can effectively

work across multiple levels of government, industry, academia, business to further posit change. Over the years, the Clean Air Council addressed a wide range of important and emerging air quality issues, including power plant pollution, interstate transport, air toxins, mobile sources, cumulative impacts, climate change, fugitive dust emissions and the impact of the COVID-19 pandemic on air quality and air toxicity that we did last year.

This year the Council is tasked with advising the Department on how to reduce food waste and control emissions resulting from food disposal. As many of you are aware, food waste is estimated to account for about one-third of the food intended for human consumption in the United States.

When food is discarded, all resources used in producing, processing, transporting, preparing and storing are also wasted. Landfilling food waste

exacerbates the climate change crisis due to significant methane, other greenhouse gases and air toxic emissions.

Food waste contributes more methane emissions than other landfill material because of its rapid degradation. From 1990 to 2020 methane emissions from landfill food waste increased steadily by 295 percent. In 2020, landfill food waste was responsible for emitting approximately 55 million tons CO2 equivalent methane emissions based on a hundred-year global warming potential.

Some of those numbers don't always hit home but the next one is fairly significant when you hear it. This is equivalent to annual greenhouse gas emissions from 15 coal-fired power plants. We did a lot of work in this state to remove coal from our portfolio. We never had 15 coal power plants, at least since I have been around.

An estimated 61 percent of methane generated by landfill food becomes

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fugitive emissions. More needs to be done to eliminate food waste and significantly reduce or recapture gases emanating from landfills.

The presenters who will follow me today will present specific recommendations that reduce food waste and its associated emissions, including policies, best practices, control technologies and funding opportunities.

We have done some regulatory work in the space. The department is developing regulations to implement the food waste recycling and Food Waste-to-Energy Production Act which requires large food waste generators, to generate a projected average of 52 or more tons per year and are located within 25 road miles of an authorized food waste recycling facility to source separate and recycle food waste.

The law also establishes a food waste recycling market development council. New to the streets, we do have

a proposal for recycling rules now, which has exemptions to encourage small scale food waste recycling activities, which would include small scale in-vessel, indoor and outdoor food waste composting, anaerobic digestion and food waste transfer activities and feeding wasted food to feed stock.

Some other efforts we have done to encourage food waste reduction includes publishing a food waste toolkit, funding food waste programs through the REA grant funding for higher education, working with other organizations to implement steps to reduce food waste and applying EPA grant funding to support food waste reduction initiatives.

We have also drafted and proposed for consideration an executive order to encourage state agencies to reduce food waste and manage unavoidable food waste sustainably.

Lastly, assessing food waste reduction strategies here at DEP

headquarters. We do our best to try to lead by example. That is one step we just started, and it starts with our cafeteria.

In closing, we are early on in our efforts in New Jersey to reduce the air emissions from food waste and we look forward to the hearing today and hearing from our speakers today who will share that New Jersey is making significant progress in reducing air and cloud pollutants from food waste and its impacts but more remains to be done to ensure all New Jerseyans benefit from breathing cleaner air.

The Commissioner and I are looking forward to the Council's recommendations to the Department on future program strategies to assess and reduce pollution from food waste in New Jersey.

In closing, I would like to thank the Council for their service, including Chair Maria Connolly, Vice Chair Rick Opiekun, Hearing Chair Maria Connolly and

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Hearing Vice Chair Milgrom. Thanks to everybody. Have a good morning and afternoon.

CO-CHAIR CONNOLLY: Our next speaker will be introduced by Mike Egenton, our longest serving Clean Air Council member and Executive Vice President of Government Relations at the New Jersey Chamber of Commerce.

MR. EGENTON: Thank you, Maria. So, the Honorable Assembly Speaker Craig Coughlin has served in the General Assembly since 2010, representing the 19th Legislative District. He is the longest serving speaker in the State of New Jersey's history, now in his fourth term.

Highlights of the Speaker's legislative tenure include raising the state's minimum wage, delivering property tax relief, investing in child care and mental health programs, increasing public school funding, ending surprise medical bills and improving the state's

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environmental remediation programs to provide a cleaner, safer future. These initiatives were made possible by the responsible state budgeting and fiscal stewardship during his time as speaker.

But the issue that is closest to Speaker Coughlin's heart is the fight against hunger. His policy agenda has prioritized food security for New Jersey families and ending childhood hunger. He has worked to expand free school lunches and sponsored four expansive anti-hunger bill packages, including increasing aid to food banks by 500 percent and creating a first in the nation Office of Food Security Advocate. His ultimate goal, in concert with the coalition of community leaders on this issue, is the elimination of hunger in New Jersey by 2030.

Speaker Coughlin stresses the importance of local engagement on food security to highlight the needs in every community, including his annual bowling fund raiser to benefit local food

pantries in his district, raising hundreds of thousands of dollars and recruiting volunteers.

Because of his passion and dedication in addressing food security and food deserts, we are honored to have Speaker Craig Coughlin with us to provide us with his insight on the topic of food waste. Thank you, Speaker, for joining us this morning.

ASSEMBLYMAN COUGHLIN: Thank you, Michael. Thank you for that kind introduction.

Good morning, everyone. It is a pleasure to be with you. Thank you for the work that you do and have done for quite a while. I appreciate those efforts. I think we are all better off because of your work.

I want to thank you for dedicating this hearing to the mitigation efforts and the reduction of food waste. We have been able to take some steps and to make progress in the legislature but there is

obviously more work to be done. So I look forward to learning about some of the options that you are going to discuss today. I look forward to things that we can do collectively to make things better and help eliminate food waste.

As Mike was kind enough to point out, the fight against food insecurity has been at the cornerstone of my speakership. I spend a lot of time on it because the fight against food insecurity and hunger means so much to the people of New Jersey. I view it -- and any of you who have talked to me about it before probably got tired, but the truth of the matter is I think it makes a difference. I see it more not as a governmental function but closer to a moral obligation. The fight against food waste will be able to help.

I have discussed the issue with advocates, frontline workers. One of the most frustrating and ironic issues that we deal with is food waste. I'd like to

remind everybody that we can beat hunger and we will because we don't have a food scarcity problem. We have a getting food to hungry people challenge. And it can be maddening just on a human level.

I think we all have that sense. That is why there is so many boxes that leave restaurants, because we don't want to just throw away unused good food when there are hungry people in need often in the same community. So figuring out a way to get that food from restaurants and other places, catering halls, for example, to hungry people is one of the things that we have tried to do some work on, being able to do that work on a donate upcycle section of the EPA's Wasted Food Scale.

I am particularly proud of the state's grants to food banks to scale up recovery and transportation for donated surplus food from restaurants, groceries, grocery stories, farms and catering halls. It makes a real difference. One

of our new emphasis has been on providing transportation for these things.

That is taking a lot of -- if we do that, when we accomplish that, we take a lot of potential waste out of landfills and get them into pantries and ultimately on the tables of our neighbors who need is. Every year I sponsor a gleaning event, and you're all welcome to come, to salvage excess crops so that our terrific local produce doesn't go to waste. I can tell you this, it is great fun. It's usually a nice fall day. You get out into the field and pick up apples or potatoes or whatever it is.

If you are not familiar with gleaning, I urge everyone to check it out. You will feel good about yourself and you will get some fresh air and get some of your steps in, too. Certainly we want to prevent it from causing more harm to our environment so it helps in that regard as well.

I am interested in hearing of the

work that you are going to do and the work that is being done on large scale composting and what role the state can play in being of support and assistance in that effort. Extracting energy from food waste is certainly better than just burying it or burning it as I see it. Of course, the ultimate goal will be working with producers and transporters on efficiently rightsizing.

Stakeholders today will be offering ideas and sharing potential solutions. To all of you who are going to do that, thank you. And to the Clean Air Council, thank you again for your work. We are lucky in New Jersey to have business, labor, healthcare, environmental experts and advocates all coming together to find solutions. It is what makes government work best and makes all of us better.

Thanks again for letting me be with you this morning. Thank you for the work that you are about to do and for all the work you have done in the past and will

do in the future. You are making a difference and that is something I think we all hope to do when we get involved in public service. Thanks everybody and have a great day. And thank you, Michael.

MR. EGENTON: Especially knowing your very busy schedule -- you and I were down at Rowan University last night to the wee hours as you were speaking to a lot of the students there. We really appreciate your insight, your leadership. Serving as long as I have on the Clean Air Council, we look forward to whatever recommendations come from our body here today. If we have to make legislative changes, I know the right person to go to to discuss those matters.

Thank you, Mr. Speaker.

ASSEMBLYMAN COUGHLIN: Thank you, Michael. I know you were in Rowan last night with me. Thank you again for coming down. And George, I look forward to working with you. Take copious notes.

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MR. EGENTON: Thank you again, Mr. Speaker.

CO-CHAIR CONNOLLY: Our next speaker is Dr. Serpil Guran, a dedicated clean energy and environmental champion in New Jersey with more than 25 years of public service. She currently serves as the Director of Rutgers EcoComplex Clean Energy Innovation Center.

She teaches sustainability-focused classes at Rutgers University with emphasis on Environmental and Economic Sustainability, along with Social Justice. Her research promotes Circular Carbon Economy and Zero Waste with the focus of mitigating climate change. Currently, she is working on reducing food waste generation and efficient reutilization for clean energy generation and soil amendment production.

Dr. Guran is a chemical engineer with further Ph.D. in Fuel and Energy Engineering. Prior to her current position at the Rutgers EcoComplex, she

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serves as senior research scientist at the DEP and she also served as Researcher and Mechanical and Aerospace Engineering Department of Princeton University and also National Renewable Energy Laboratory in Golden, Colorado. She has numerous publications including peer reviewed journal articles, book chapters and conference presentations.

Thank you, Dr. Guran.

DR. GURAN: Thank you so much. Good morning, everyone. Thanks for this generous -- I am trying to upload my presentation. Give me a second, please. I am joining from far away. I think you can see my slides. Perfect.

Today it is very important that we are discussing and thanks for the opportunity that I will be sharing Rutgers EcoComplex food waste reutilization thoughts and thank you for considering our suggestions also.

Food waste is very important in the first place, as the Speaker mentioned.

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We should reduce the food waste generations. Yes, New Jersey is doing great but still we have a lot to do. According to press in New Jersey, New Jersey residents, businesses and institutions discard approximately 3 billion pounds of food into trash each year. This discarded food costs about $10 billion per year, so about $1,000 per person.

As everybody knows, we are getting crowded. When the population increases in coming years, need for resources will increase, especially demand for food is expected to increase 60 to 70 percent. New Jersey will also experience similar trends in the future, and there will be more demand for food.

Urban sprawl and development from both Philadelphia and New York City is a significant threat for New Jersey farming, water quality and habitat in New Jersey. We have to understand the importance, as previous Speaker Coughlin

mentioned. We need to also always mention about the food justice before even we go into food waste. Food justice is important, and food systems should consider that food should be healthy, nutritious, affordable, available, accessible and also culturally acceptable. Our food systems should consider these important matters before wasting food. It is so dangerous for our economy and for our environment.

As everybody knows -- I may be preaching to the choir -- urbanization and waste generation is a fast pace. Especially as urbanization increases, solid waste generation is accelerating. Currently food waste is an important component in MSW. So between 18 to 22 percent is food waste in the MSW.

A city resident generates twice as much waste as rural counterpart, so to account for the fact urban citizens are usually richer they generate four times as much. Research says that. When we

are trying to talk about food and food waste, we should always think about the economic and environmental implications.

Currently what is happening with food waste disposal? Majority mostly is ending up in the landfills since we do not yet a well-established infrastructure of food waste collection and recycling facilities throughout the state yet. When food waste ends up in landfills, only landfill gas is recovered. Everybody knows landfill gas recovery efficiency is dependent on the landfill's age and type. Everybody knows again but it is important to underline nutrients are not recovered and they are buried forever from food waste.

Before we have to deal with food waste, we have to also understand what is food waste. There are so many definitions. Food loss, food waste, food wastage. Food loss refers to a decrease in mass or nutritional value of food that was originally intended for human

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consumption. Food waste refers to --

CO-CHAIR CONNOLLY: I am sorry, Serpil. Are you advancing your slides because we cannot see it.

(Brief interruption.)

DR. GURAN: Food loss refers to food appropriate for human consumption, as I mentioned, being discarded whether or not it is kept beyond expired date or left to spoil. Food wastage refers to any food loss by deterioration or waste. This term "wastage" encompasses food loss and food waste.

Also, there is an option, avoidable food waste. Food and drink thrown away that was at some point prior to disposal edible, like a slice of bread, apples, meat, possibly avoidable food waste is food and drink that some people eat and some others do not wish to eat, like bread crusts, or can be eaten as food preferred one way or another. Like some people prefer to eat potato skins.

Unavoidable food waste, however,

waste arising from food or drink preparation that is not and has not been edible under normal circumstances like meat bones, eggshells, pineapple skin, tea bags.

So basically what happens to food waste currently, if we define it as fractional food and inedible parts of food removed from food supply chain to be recovered or disposed. Food waste includes crops plowed in and not harvested, composted, converted to energy and digested by anaerobic digestion, used for bioenergy production and cogeneration, incinerated, disposed to sewer, landfill, and discarded to sea in some cases.

Current food waste management. What it is basically, as I mentioned, food waste is ending up in landfills and landfill gas leaks into the atmosphere in methane form. Best landfill recovery efficiency is around 80 to 85 percent and not all the landfills have this

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efficiency based on their technology type and age. Methane has global warming potential between 30 to 80 times more than CO2.

Certain landfills are not even generating power in New Jersey from the recovered landfill gas since cleaning landfill gas by mostly recovering the siloxanes and other impurities is costly. Natural gas is abundant and cheap so landfill gas to energy cannot compete with fossil-based natural gas to power. These are the important things that when we consider how to reutilize food waste.

Because also food has an environment footprint, that is why it should not be wasted. I don't want to read the whole slide. But last 30 years, crop lands increased only 12 percent but nitrogen, phosphorous and pesticide usage increased immense amount.

If we continue wasting the food we will be impacting many things, including environment and the whole economy

basically.

Why am I talking about this? Food is expensive, food has high carbon footprint. In addition, food has high water footprint. Food is no longer only a local resource. Greenhouse gas impacts from food transport are far less than impacts associated with the production phase.

Food imports and transport are usually associated with increased use of packaging, increase the rate of food waste from spoilage and damage during transport, and from rejection of consumer-ready products imported from countries with lower safety standards.

So you can see that water and carbon footprint of several food sources. I am sure you have seen similar information many times. I am sharing, just to provide information for estimated food loss across the U.S., which is pretty similar to New Jersey consumption and wastage rates.

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So EPA also provides information on that, how each step in the food systems is generating how much pollution and cost. Total cost and also emissions.

I always use this simple example. In the food system, every step generates food waste and every step from farm to consumption, every step -- fossil fuel and fossil power used and organic waste is generated.

Then what happens currently? Food waste ends up in the landfills or incinerated, but also as I mentioned, landfill gas generated or incineration, but how efficient they are. They prove that there is leakage so economic impacts are not supporting New Jersey's climate change mitigation goals.

This chart also provides the environmental footprint of U.S. food supply chain, and New Jersey food supply chain is very similar to this, EPA's reporting.

I would like to introduce -- I am

sure everybody knows about the concept of circularity and how food waste can be treated as resource. Circular economy is an economic system that replaces the traditional end of life concept with reducing, alternatively reusing, recycling, recovering materials in production, distribution and consumption processes. Circular economy can be an effective pathway for lower carbon economy, therefore promoting combined understanding of circularity and lower carbon economy as circular carbon economy and emphasizing the transformation of linear disposal and creating circularity is very important.

Obviously, it is not easy, circularity, so there are economic problems, maybe challenges, I should say. Assessing financial benefits of circular economy is important, but -- financial profitability is important, but structurally, you have to achieve things. Achieving exchange of information,

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defining responsibility and distribution. Operational, redefining the infrastructure. We need an efficient infrastructure in New Jersey and we need strong supply channel.

Knowledge. We have to understand the perception of sustainability. What are we understanding from sustainability. Behavioral change is very important. And we need technological improvements and also infrastructure related to that. New product designs in the food systems to absorb waste resources and integration into processing. Also, current correct carbon counting is very essential.

I mentioned that for sustainable bioenergy circular carbon economy, there are so many organic wastes, but we are concentrating today especially food waste. And the main technologies appear, that they are commercialized, anaerobic digestion and composting. There are other technologies that I listed but given the time I won't be mentioning

that.

Food waste, pre and post -- I mentioned pre- and post-consumer waste. State should consider for future decision-making also not only pre-consumer food waste but also post-consumer food waste should be considered to achieve better results in states dealing with food waste and also achieving better economic results and environmental results, especially climate change mitigation.

Finally, EPA also is considering this. If you look into this, EPA mentions the preferable approach is composting and anaerobic digestion using digest aids, also utilizing not only energy generation but utilizing clean food waste anaerobic digestion digested utilization. This is very important because EPA's word also underlines the importance.

Composting is an important technology, so composting has to be

supported in New Jersey and in many ways. So, helping them in permitting is very important. Also, anaerobic digestion should be encouraged where applicable. One size does not fit, so large scale digesters are more efficient. Small scale digesters can be used only for demonstration or education reasons maybe in the higher education institutions.

The digesters should be centralized like, as I mentioned, where the food waste is available and where the permitting is feasible.

Energy generation component should be supported. How to integrate energy into the grid and providing certain incentives are very important. Obviously, environmental implications should be considered such as truck trafficking and sound and other problems.

Standalone digesters are one solution, but also large farm applications can be considered if applicable. Also, co-locating digesters

at the landfills can help to transform landfills also for the 21st century needs because, in this case, landfills can receive source-separated food waste and then digest, anaerobically digest them. And they already have installed assets for power generation.

In this case, the biogas is not going to be similar to landfill gas because it is going to be without siloxanes, so gas cleaning will be much cleaner and, so, cheaper, I should say, easier. So, it will be an option. It should be maybe considered in the state. Obviously, wastewater treatment facilities are great examples for anaerobic digestion locations.

There are so many technologies that I am offering here, but especially I'd like to underline the anaerobic digestion and composting. Obviously, not every food waste is applicable for digestion or composting right away efficiently. But also, there are certain emerging other

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technologies and trials may be also considered, like whether or not they are delivering good results.

For food waste and circular carbon economy into New Jersey's efforts, we need integration planning. This hearing, public hearing is one of them. So short-term planning is already being done. Engaging decision and policymakers is very important. Avoiding contamination in waste streams is very, very important for composting and also for anaerobic digestion, so food waste should be source separated as much as possible.

Yes, currently we are considering pre-consumer food waste but maybe post-consumer food waste in the future should be considered as source separated and recycled that way.

Obviously, improved collection and sorting, as I mentioned, improved labeling and traceability is important for food waste. Enabling secondary

markets is very, very important for the products.

Facilitating collaboration across value chains. It may sound a little vague, but it is very, very important for food waste, from each step I mentioned, from farms and orchards to production facilities, processing facilities, to everywhere collaboration is needed.

In the state, we need innovative thinking. Again, I have to apologize for mistyping. Leakage of food waste to other states. Our food waste is a resource and should not be ending up in other states, but also leakage should be somehow controlled in some ways and encouraged, avoiding the leakage.

Mid and long-term planning. Again, innovative thinking in after use/consumption. Investment in better packaging is important for New Jersey food processors.

Policies and intervention for decoupling fossil feed stocks for

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material production and fossil energy and fertilizer from food production and ag is very important.

So I would like to conclude that sustainable farming should consider utilizing food waste compost and organic fertilizer from organic food waste, clean food waste anaerobic digestion to obtain better environmental and economic results. Displacing fossil fertilizer by organic fertilizers from composting and organic waste will not only reduce carbon footprint from fossil fertilizer production but also enhance water conservation and energy savings.

It is very important because when we look into food we also have to understand the energy and water implications under the food energy water nexus framework. Sustainable food products should be labeled for not only health benefits but also positive environmental impacts.

With this, I would like to thank

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you. If there is any questions, I would like to answer. Thank you.

CO-CHAIR CONNOLLY: Thank you, Serpil. Any questions from our Council Members, please?

MR. OPIEKUN: Serpil, thank you for a great presentation. You mentioned several times circular resource management challenges as well as the need to enable secondary markets. When it comes to the stakeholder involvement, partnership development, how do we identify the partners, the communities, especially those that would benefit from an upscaling program to minimize waste? Do you have any thoughts on that?

DR. GURAN: As I mentioned, we are doing in state great efforts, and education outreach is very, very important. But case-specific solutions can be offered. So, yes, we are doing pre-consumer food waste collection and if any facility is generating more than 52 tons food waste they have to send it

to recycling facilities. But even smaller facilities can be encouraged. Food processing facilities smaller than -- small restaurants, small kitchens. Somehow we should be able to aggregate that food waste. When we create compost also we have to create, digestate and compost, we have to provide support so they can be easily marketable.

We need to spread the word throughout the state, and we are doing this, but we need more. From schools -- I know great speakers we have, but we have to also -- higher education should understand this also. Rutgers University, we are doing composting. We have to spread this to all higher education campuses. Demonstrations are so important.

So, a lot to do really for secondary markets and also education and outreach. I hope I answered your question.

CO-CHAIR CONNOLLY: Thank you so

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much. Other questions from Council Members?

Thank you, Dr. Guran.

DR. GURAN: Thank you.

CO-CHAIR CONNOLLY: Next, Gary Sondermeyer, VP of Operations for Bayshore Recycling of Woodbridge, New Jersey. Bayshore is one of New Jersey's largest recyclers, managing nine separate recycling operations on its 58-acre campus.

Gary also serves as Chair of the Board of Trustees of the Sustainable Jersey Program, Vice Chair of the Governor appointed State Plastics Advisory Council and Co-Chair of the Legislative Committee of the Association of New Jersey Recyclers.

Gary joined Bayshore following 30 years of service at New Jersey Department of Environment Protection. He served as the agency's Chief of Staff for 10 years under six New Jersey governors. Gary has undergraduate and Masters'

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Degrees in Environmental Planning from Rutgers University.

Gary, come on up.

MR. SONDERMEYER: What a pleasure to be back in the DEP public hearing room live and in person. Absolutely amazing.

I want to thank the Clear Air Council for the opportunity and our Co-Chairs Connolly and Milgrom and Allen Weston, who was kind enough as a Council Member to invite me to participate today. My forever colleagues and friends, Michael Egenton, John Valeri, Toby Hanna, Kim Scarborough, all the colleagues and teammates from DEP. Paul, who spoke earlier. Frank and Peg who is here and all the folks that Maria mentioned earlier that I work with on a regular basis. I even wore my DEP pledge pin today to get a little extra credit for that.

Today I have the honor of representing two organizations, the Association of New Jersey Recyclers, or

ANJR, and the New Jersey Climate Change Alliance. I would like to tell you quickly the story of the work we have been engaged with over the past 11 years to candidly support the Department. That is what it has all been about.

Over the past four years, what we've sought to do is take this tremendous template, the Global Warming Response Act 80x50 Report and draft the implementation plan for Chapter 5, dedicated to waste and agriculture. You asked a great question of Serpil about sort of the village it takes to do this work. That is what we have tried to do, bring together the village.

I would like to highlight one particular project. It is really amazing today. Every single speaker has been part of this discussion, so we are all working together, which is what we should do to address a common issue that we need to improve in our work. Finally, I have a couple of recommendations from our

organizations that are very important and that I will lay out at the end.

George will help me here. So, we know in waste world that about 22 to 25 percent of what is left in the garbage can after 37 years of mandatory recycling is food. It's candidly where we have failed. We haven't had historically a successful focus on food waste recycling. ANJR put together a food waste facility in recognition of this in 2013. What we basically did is we wrote a piece of legislation. We have a tremendous relationship with Senator Smith, who was kind enough to sponsor it. We pushed the button to the Office of Legislative Services in 2014, and that became that really long name that Maria mentioned before, Food Waste Recycling and Waste to Energy Production Law. I call it the disposal ban legislation. It was passed in 2020.

Really the theme of what we said to the legislators is kind of "Field of

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Dreams" here. If you pass it, they will build it. The hardest thing in building major projects, siting is very challenging, and it should be. It is really important, particularly in a state with such an important focus on environmental justice. The regulatory process is very challenging as well. But the hardest thing is financing.

So, under this law -- and Paul actually went through the parameters -- large quantity generators, 52 tons a year, 25-mile radius, you have a guaranteed flow of material. Banks really like that so you can get financing.

I am happy to report that it took a while but we do have two significant new facilities that have been incorporated into county plans, one in Linden, 1,475 tons per day South Jersey Industries. A second one -- Michael, you were down there yesterday with Speaker Coughlin and Rowan -- a 475-ton per-day

facility by Bioenergy Devco.

A long way to go through the regulatory process but very positive.

The food problem statement. Probably everybody knows this but it bears repeating. It has to be repeated again and again and again. Roughly 35 to 40 percent of all food that is produced goes to waste. We sit in one of the most affluent places on the planet. We are the third most affluent state in the United States with three counties in the top 15 in the most affluent industrialized nation on earth. Yet, despite the affluence, 11 percent of our population and 15 percent of kids 18 and under are food insecure.

Insult to injury, as Paul mentioned in his remarks, 15 percent of the methane comes from where the food goes. It goes to landfills. It goes to landfills. This is a disgrace. We have to correct this issue.

Maria mentioned the 217, Food Waste

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Reduction Act. That was a really interesting thing for the legislature to do. A simple one-pager law, created an aspirational goal, 50 percent reduction of food waste by 2030. It also tasked the DEP with developing the state's first food waste reduction plan.

What is fascinating about that is DEP has never had anything to do with food recovery. It is an area that is really interesting, somehow it has escaped regulatory oversight forever, other than very important elements for food safety from the Department of Health, how you package and deal with food. But there has never been any statewide planning for food recovery.

What we did in 2020 is we pulled together through the Climate Change Alliance, an organics workgroup. What we sought to do was, for the first time, introduce the food recovery and food waste communities to each other. I am not exaggerating, they don't even know

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each other. We have made some progress but it is just a beginning. Our goal was to bring this group together, taking a village to do a statewide gap analysis of what do we need to do to become sustainable in materials management through voluntary collaboration.

We formed a Steering Committee of this organics workgroup. Bayshore led that effort. It was under the Climate Change Alliance out of Rutgers. Our partners were ANJR, Composting Council. Matt is going to represent the Composting Council later today. Veronique is going to talk from Sustainable Jersey. The Center for Eco-Technology, an amazing non-profit organization out of New England. And DEP. We had Helaine Barr. You mentioned Helaine earlier. She was part of our Steering Committee.

We looked at five chapters of the Book of Organics and conducted an 80 organization stakeholder process to identify, what are the gaps? What do we

need to do?

We looked at food waste donation, food waste management in schools, small scale composting, large scale composting like Serpil talked about, and sustainable animal manure management.

Came up with 17 recommendations. I don't have time to go through them. I put a link to the plan here. Please, I encourage members to take a look at it. The 17 recommendations are 12 pages. And the first recommendation is what has been talked about earlier, food equity. To look at social determinants of health -- do the same kind of thing we've done with environmental justice to food.

Related baseline work. I am a planner. That was my background. Plans are great. They're really important. But plans mean nothing if you don't do anything with them. So we've worked hard on implementation.

When I say related work, this is not directly out of this organics

workgroup, I don't mean to say that, but we all work together so it is all related. We're all going in the same direction. We have $800,000 in grants, most of it from DEP. A phenomenal partner DEP has been in financing this work.

Dr. Sara Elnakib is going to talk about the New Jersey Leaves Nobody Behind. My colleague Bernie * is here from Sustainable Jersey. He's going to talk about the SJ Project.

I want to tell you a little bit about the *Food Asset Recovery JAS Mapping Project. It is a critically important baseline work.

So here is the food system. This is the part that DEP has never really had anything to do with. There is even some questions about the definitions. I think Serpil said that, about what is food waste and so forth. We basically have six food banks. The banks are the big warehouses, the big distribution centers.

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Largest by far is the Community Food Bank of New Jersey. There is a Food Bank of South Jersey, Fulfill Monmouth & Ocean, Mercer Street Friends, Northwest Community Action in the northwestern portion of the state and Replenish for all of Middlesex County.

The work that we have done in this mapping project through Rutgers and Stockton is the first time any of this type of work has been done. We have identified and are mapping 843 food pantries across the state and 150 soup kitchens.

This is what we are mapping, all the generators of food. We had a threshold question. Should we just look at that disposal ban legislation and map generators above 52 tons per year? We said absolutely not. Everybody should be donating food. So we mapped everybody. Mapping all the supermarkets, grocery stores, hotels, casinos, schools, correctional facilities, farms. All the

distributors of food, the banks, pantries and kitchens, all the composting world. The micro haulers that pick up food waste in 55-gallon buckets and bring it to compost facility, the larger scale facilities and smaller facilities.

So, who generates the food? I think this is a familiar refrain to the Clean Air Council. With mobile sources and the villain often is us. 43 percent of food waste comes from residential, 26 percent restaurants, 14 percent supermarkets, 9 percent institutions, 8 percent food manufacturers and processors.

These numbers, again, are the first time this kind of thing has ever been cataloged in a database and inventoried in the state's history.

Look at some of these numbers. I will keep it in round numbers. About 6,000 supermarkets in the state, 18,000 restaurants. In total, about 3,200 schools, public and private. 164

colleges and universities. The hotels, called the hospitality sector, 1,600 hotels, all of which generate a lot of excess food that we need to work with.

Legislation. We have worked on six or seven different bills. I mentioned we got the big one through, the disposal ban legislation. The others that we have done, I put them in painful detail for the Council so you can see what the bill numbers are, who the sponsors are and a link to each of those bills. I will only talk about one of them. Again, this is very important. We haven't had institutionalized statewide planning for food recovery.

There is a bill that we strongly advocated for going through the legislature. I call it the County Food Recovery Planning Act. It would charge the 21 counties with doing a next chapter of countywide planning.

Back in the eighties, every county was required to do a solid waste plan, a

garbage plan, which resulted in the 12 double composite line landfills, five mass burn incinerators we built in the state. Mandatory recycling comes in in 1987. The second chapter. Every county does a statewide recycling plan.

This would be chapter three, for the counties to develop food recovery plans. I want to be as painfully clear as I can possibly be. It has to be planning, not regulation. If it is regulation, shut the store because that is not what the food recovery world needs. They need advocacy and we need planning to connect the dots.

I wanted to show you the food asset recovery project that we did. We did that to give the counties, to be able to hand them a template of all the baseline information they need to connect the dots, because often in food recovery the problem is transportation. It is getting rid of misconceptions that you can't donate because you can; that is very

clear. The next issue really is transportation.

That bill we got through the senate environment, assembly environment. Got hung up in the last session in senate appropriations but hopefully it will pass this year and we will bring about really important institutionalized planning.

Development of a statewide food reduction plan. That plan was adopted in October last year. The state, and Paul had mentioned this, applied for a SWIFR Grant. It is about $500,000 to develop a toolkit for municipalities and improve our estimation of metrics for estimating food waste generation.

DEP has also worked with Climate Pollution Reduction Grant, a significant focus on food, which could bring substantial dollars to the state for that work.

Finally -- and I hope everybody knows this -- Recycle Coach. The state bought Recycle Coach for every town and

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every county in the state. It is absolutely amazing. Who does that? And what that tells you is everything and anything you need to know about waste management and recycling in your town. It has a clean communities part of it added. So, it is tremendous.

The bad? I believe DEP blew this. I am a biggest fan of the Department. The compost regulations are suffocating. They have to be reformed or we are not going to be able to achieve our goals. I don't have time to go into detail.

The ugly? We started with this village to focus on small scale stuff because composting needs to be of the people, by the people, for the people as close to the generation point as possible. Backyard composting, community gardens, recycling in schools, smaller scale systems. The big projects are great if you can develop them, but we really need it to be holistic.

We started a stakeholder process

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with the Department based on rule making for a community garden. Next month it will be the sixth anniversary of that discussion, and we don't have anything yet. Now, Paul was here today and mentioned regulations are coming. We have been waiting. And this is good. Maybe this is the progress we need to address this because I am telling you, as Chair of the Board of Sustainable Jersey, we have 466 towns, 1,182 schools actively involved who all want to compost, and we got nowhere to bring it. We are all dressed up and we got nowhere to go.

The final slide. What we need fundamentally is a tiered regulatory system for compost facilities. The first part of that needs to let go of some things we should let go of. Backyard composting, regional schools management of food and community gardens. We need streamlined planning provisions. It is already in the law. It is called an administrative action under Section

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*7266.10. We need to apply that for any of this food-related work and the use of registrations, general permits, permits by rule where that's possible.

Second, we have a phenomenal project, a poster project in the state, waste management. Took an old garbage transfer station in Elizabeth and they brought in a blender. It has a fancy name, it's called a macerator. It takes source-separated food, put it in a blender, make a slurry, drive it up the road to the Rahway Valley Sewerage Authority and make renewable natural gas in a controlled environment.

The recommendation is for the Department to take a very aggressive role as part of their role in public policy development to bring together the wastewater treatment plants to say we can do this elsewhere. It makes all the sense in the world. We are talking about using existing capitalized environmental infrastructure and maximizing the tank to

put food in it to create more gas. We avoid siting and all those issues.

Recycle Coach expansion. I mentioned Recycle Coach, how important it is. Imagine a world where every single restaurant, at the end of the day, has X number of meals that go right in the garbage. And we have an app that connects those restaurants to the food pantries. All you need are volunteers materials, and there are the folks that run these pantries, to drive over, pick up the food stick it in the refrigerator and deliver it. With 18,000 restaurants in the state, we need to make this work.

Recycle Coach, I have a proposal from them. It is doable and hopefully we can make it happen.

Finally, to look at this whole issue of waste reduction holistically. As Vice Chair of the Plastics Advisory Council, we will come out with our second-year report in May or June. We really focused attention on waste

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reduction of single-use plastics this year, but there is a direct linkage to food. What we are laying out is a platform for disposal-free dining. It all is holistically coming together and hopefully we can focus on it.

Thank you for the opportunity. I really appreciate what the Council has done.

CO-CHAIR CONNOLLY: Questions, please, but also make sure you say your name when you're asking the question.

MR. EGENTON: Michael Egenton, State Chamber.

You obviously have great strategic vision in this category. One of the things we discussed in the Council early on was, have you ever looked with your team of experts at some of the, I'll call it, antiquated municipal ordinances, county provisions that -- you know, you come to my open house every year in June at the museum. We want to donate the food but you can't because there's all

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these stipulations about once a piece is taken out you can't bring it. Is it hot or is it cold?

Have you ever looked at those, at the beginning of the process, so we can give that food to people that are in need?

MR. SONDERMEYER: It is a fascinating thing. There has been a Good Samaritan Act that even takes away prospective environmental liability for food donation that's been on the books for 40 years. It's unbelievable. Nobody remembers it. Good question, Michael. It is education on you can donate. This is very clear specifications for packaging, labeling and refrigeration of food you can donate. We will hear more about it, I am sure, later today.

I think one of the grants DEP got, SWIFR Grant for $500,000, part of that is to put together, right to your point, a municipal toolkit to explain all of this very clearly to our 564 municipalities.

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That is really important that it comes from the state, because it brings the imprimatur of the state. I think we'll get there.

MR. VALERI: John Valeri, Public Member.

Gary, have you thought about going to the municipalities, some of the groups -- I remember the Environmental Commission and I know at least my commission has been very interested in food waste and composting. But certainly, as you say, it's clear what the regulations are in donating.

That was going to be my question. I was always told, being a volunteer, you can't do certain things. Has there been any push from your organization to educate them so they can educate us?

MR. SONDERMEYER: That is what we tried to do, John, with the organic workgroup in the village. One of the subcommittees we formed was an Education Committee. I wanted to recognize Emily

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DeMaio from the Department who took the lead with that committee. We put together a food waste toolkit to address those exact type of questions. It is up and available on the Department's website now. Jack has been a partner, been part of our village.

Really, what we need to do to connect all these dots really, we have to reform composting. We have the food recovery thing moving, but we have to have a place to bring the food waste. So we drive it away from landfills for the Clean Air Council and the methane gasses that it produces.

Anything else?

MR. HANNA: Part of our prep for this hearing was several presentations, including some by DEP staff. One thing that struck me and I think others was that the baseline information, some of which you shared, which was fresh and good to see, is lacking, particularly -- you had the waste generators by count,

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but their waste streams and the measurements of those, for a policy to be effective and to be well targeted, we need to know -- don't we need to know more information? Is that coming? Is that another level of your GIS mapping exercise, to know where can we get the bang for the buck? Where are the big streams, where are the ones that are closest to infrastructure?

MR. SONDERMEYER: Thank you for the question. I didn't mention it. It is part of the GIS mapping project. An additional component of it was 100 interviews of different food generation sectors like supermarkets, restaurants, institutions, to get better estimation factors for calculating excess food.

It is exactly what you said. Again, going back to the 217 Law, the legislature handed DEP something to do that they had absolutely zero institutional knowledge. We had to start from ground zero. That is why I think

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this GIS mapping project is so important, to help inform the baseline, as you said, of what the universe is and how much excess food is actually being generated. With that kind of planning then you can look at solutions and trying to drive public policy to address the problem.

MR. HANNA: You are pretty confident that that is coming and in the works? Is there a recommendation to be formed by the Council to make sure that that happens?

MR. SONDERMEYER: I think it is well underway. I should have mentioned the, GIS mapping project should be made available by August. We are almost there. That same SWIFR grant that DEP got is a second chapter, Toby, of looking at how we can improve the estimation metrics for excess food. So I do think that is well underway and doesn't really require recommendation from the Council.

MS. BROWN: Sharon Brown, Public Member.

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I wanted to ask a quick question about the Elizabeth facility with the macerator blender. What happens when the slurry goes to the POTW? Just briefly, I am curious.

MR. SONDERMEYER: It is in a tanker truck. They literally hook up a hose and pump the material into the existing digester that is processing biosolids. What they are doing is they're adding more organic material into the process. In a way, they are kind of maximizing the use of that tank to produce more renewable natural gas in a very controlled environment. So it is not like a landfill.

Landfills, we have the best technologies you can have in the state for methane gas recovery. They still leak like sieves. I'm sorry, they just do because they're too big. But in a tank like that you can control it. It is such a great direction for us to pursue to make use of something that is already

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there instead of siting new facilities and multi tens of millions of dollars to build them. Hopefully we can replicate the example of Rahway Valley elsewhere in of the state.

MS. BROWN: There is a second part. Are corporate entities that are diverting their food waste to that facility -- I don't know if there are, but if they are, with the new SEC rules regarding disclosure on sustainability metrics, I am wondering if this could actually help promote this on Scope 3 emissions from facilities, on their supply chain.

You have a big cafeteria for your employees and you are feeding them and you're capturing and you're taking your food scraps to the Elizabeth facility, theoretically I see a benefit to that Scope 3 number for large businesses that have mandates for reporting greenhouse gas emissions because they are diverting some of their third-party supply chain stuff.

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MR. SONDERMEYER: Yes. Your question is outstanding and spot-on. The corporate world has really changed from my early days at DEP. They are really pushing the envelope on sustainability. Those kind of metrics are very important to them.

Brian Blair is going to talk, from Trenton Renewables, later. They probably calculate those kind of numbers. I believe waste management does as well. You are absolutely right and it is really important to bring everybody into this as a collective effort. Great point.

DR. BIELORY: I'm a little disturbed, because I'm a physician, on the Good Samaritan law. I want to understand. Where is the disconnect from the point of view that you can or cannot use these foods that have been prepared?

I get the impression -- I keep getting the words "You can't do that." I am a president of a synagogue and want to give away all the foods that not being

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used, or XY and Z, and they claim zero. But you are making a statement that that is not true. I am totally befuddled. How do we breach this disconnect?

MR. SONDERMEYER: It's a great point. What was just represented is a common misconception, that you can't donate when you absolutely, unequivocally can. What we need to do is a better job in laying it out.

Some of the folks I know that are here today will speak to that issue in the public comment section. There will be more to come. But you absolutely can donate food. We have a piece of legislation -- the slide that didn't come up, is one on date labels. There is tremendous miscommunication on date labels as well. For the most part, they are advertising. They don't mean anything. They have nothing to do with food safety. We have to dispel these misconceptions.

This one, thank you for raising the

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question. We have to do a better job of education to lay out and dispel the misconceptions. There are very clear standards on how you package food at the end of the day, how you label it and how you refrigerate it. If we can develop that, you wouldn't have to refrigerate it because we will connect the dots and we will deliver it to a restaurant and deliver it to people the next day.

DR. BIELORY: I would like to have the Council contact you after the meeting as well because I have still have more questions to refine our proposal. Thank you.

MR. SONDERMEYER: I think that would be a wonderful thing for the Council to look at in terms of having a statement about you can donate food.

Thank you again.

CO-CHAIR CONNOLLY: Our next speaker is Veronique Lambert. She manages the sustainability certification program for public the public pre-K

through 12 schools throughout New Jersey, interfacing with school personnel, professional associations, government agencies, non-profit organizations and businesses that operate in the education arena to both develop the program and facilitate participation in it. She conducts extensive outreach and training to schools about the program. She also works on initiatives to bring additional content and resources to the program, such as the school food waste pilot project. From the program's 2014 start, over 1,000 schools participate today.

A member of her town's Environmental Commission and Green Team, Veronique has previously worked in sustainability education and community outreach in New York City, London, Providence and Ithaca. She also performed cropping systems research in Hawaii and Guyana. She received a Bachelor of Science and Master of Science in Agronomy from Cornell University and

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University of Hawaii, respectively, and a Master of Science in Geography from Brunel University, London.

MS. LAMBERT: Good morning. Thank you. I didn't realize the bio would be read out. That is kind of embarrassing.

Gary and actually the previous speaker as well touched on a lot of subjects that I will talk about as well, but really focus looking at the pre-K to 12 environment. As the introduction suggested, that is kind of like my playground that I splash around in.

We will narrow in on what set up the stage for Sustainable Jersey trying to address food waste in New Jersey schools and some work we undertook about changing current practice. Actually, what we are currently doing to drive the implementation of those practices but also recognizing that there is additional work that needs to be done. I will hit on that briefly.

In the next couple of slides, just

reiterating this point that has been made repeatedly about the volume of waste, especially in schools. I don't know if any of you have been to a school cafeteria recently. It is really kind of mind blowing just seeing the huge trash cans that are overflowing with all manners of both food, organic waste, but also a lot of the packaging and trays that are used, the single-use items to take the food to the students. Then I guess the fact that this is -- a lot of it is accumulating in landfills.

This has been previously mentioned, that there is a lot of food waste. Just coming from schools alone in the U.S., it is estimated over a billion pounds. I will touch a little more on the study that we did, it's a study we did in collaboration with Rutgers cooperative extension. You will be hearing from Sara Elnakib later this afternoon. In that study, we looked at food waste at three schools, two middle schools and one K to

5 school.

Doing the waste audits, we estimated -- based on our measurements, we calculated they were wasting almost 21,000 pounds in a school year.

This really struck me, from ReFED. They are a non-profit that does a lot of data analysis trying to promote or encourage, do advocacy to address food waste nationally.

It does have profound environmental consequences. That was laid out very well by both Gary and the earlier speaker from Rutgers, Dr. Serpil Guran. Really looking at those environmental costs.

We are focused on energy here and climate change but there are also costs thinking about all the water. She also was talking about fertilizer. It is a lot of expense and resources into producing the food so it is really kind of a crime that we waste it.

Looking in terms of focusing on the climate gas emissions that we are focused

on here today, the top two bullets there are talking about 6.1 percent of U.S. greenhouse gas emissions, and that is equivalent to 86 million passenger vehicles. These are data coming from ReFED. The EPA has a data point that nearly 60 percent of all landfill emissions of methane, and methane is a really potent greenhouse gas, as you guy all know, is from food waste.

That is to justify why we are addressing food waste when we are talking about climate change. Gary also touched on the social impacts, which are really significant as well, especially when working in a school environment. And to think about that, there is families in need. We have kids that are food insecure. So it is a crime really to be wasting food when we have families in need of food.

Also very important to schools are school budgets. So, that they are paying to dispose of their waste and that the

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food waste comprises a significant portion of that is also something to consider.

For those of you not familiar with Sustainable Jersey, our role in this, we are basically generally trying to drive sustainable action in public schools. We have a sister program that does it for municipalities. Naturally, the food waste actions are part of a larger portfolio of actions that we are trying to encourage, but we have been doing a the lot of work in this arena the past couple years.

The way we do that is through incentivizing. We provide tools, resources and guidance. We basically are trying to -- kind of like a roadmap. You want to address food waste in your school and here is how you would do it, here are the steps and resources. We try to promote free resources that are available to you that are relevant for schools in New Jersey.

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We also have our own grants program where we fund raise. We have corporate sponsors who provide funding, and we have a grants program where we can award grant money. It is smaller amounts, like $2,000 or $10,000, to schools toward implementing sustainability projects, such as buying composters or recycle bins or even doing education projects in the schools.

We have a recognition program so we recognize schools that are able to do some of these actions through certification.

It is through incentivizing and trying to enable through building capacity, through knowledge and also through funding.

To kind of set the stage how we became more focused on food waste, in truth when our program first rolled out in 2015 we didn't really have that many actions that were specifically targeted on food waste. We had one that was a

waste audit. Yes, it mentioned cafeteria waste. But what we found -- I am not going to go into the specifics of the regulatory environment because Gary covered that quite extensively. Actually, we are in an environment where the laws are changing but also what we noticed in schools was that there was an interest in the schools to address this topic. Despite the fact that we didn't really have a space for them to showcase their work, we were -- we have like an innovative action where they can show us something they are doing that doesn't fall into the realm of other actions. We were seeing that they were talking about trying to grapple with the amount of waste in their cafeteria.

We were also getting grant applications seeking funding to address waste in the cafeteria. We said okay, we need to meet them where they are. And DEP gave us funding. We were able to get funding through the REA Grant. We

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partnered -- this is the project where we partnered with Rutgers University to do a pilot study to go into schools and study this and see what are effective ways to address this.

This is the highlights. As I said, there were three schools. Initially, we wanted to do just middle schools because we have shown that 5th grade is a critical grade to try and introduce new practices to get behavior change. It is when students start to develop a sense of autonomy and self. One of the schools, however, was K through 5 school. Combined enrollment was about the size of a regional high school, about 1,700 students.

We did the preaudit and measured how much waste there was before we implemented any of the measures. Over 62,000 pounds of food waste. This is just from lunch. We didn't do breakfast in the academic year.

Then we implemented a -- well, we

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didn't implement. We kind of did training with the food service staff, with the teachers. We guided the teachers who were doing education with the students and we implemented -- we coached them to implement interventions. Just with those interventions, it was supposed to be a year later but there were a lot of complications of post COVID environment in schools so we ended going back a little later. We saw a 45 percent reduction in food waste just through the measures, which I will go into in the subsequent slides.

On top of that, part of the grant was they got funding to buy composting machines. I am using that term lightly. They weren't all composters. I think there were a couple dehydrators. I am not sure what the third one technically was. I use composting to mean recycling of organic food waste to a usable end product.

So when we add the composting in,

we basically almost eliminated all the food waste because it was 92 percent. Then they were able to recover some of the food that was unopen, that was untouched. Through share tables and through all of that, we estimated that we took off the equivalent of 21 cars off the road for one full year, over 200,000 pounds of carbon dioxide avoided.

These were the practices that we were kind of promoting. Educating students about the value of food and the impacts of food waste. This sounds -- this doesn't sound like really that great, but this is really critical. This is how you got to that -- you got to that 45 percent reduction without even doing any kind of composting or food waste recycling. Once the kids and the staff, the adults, first of all, saw how much waste they were generating, then you teach them about those economic costs and environmental costs, then they have a very different view of their food. And

that is a key component to how they treat it. They are less likely to take food if they are not going to eat and less likely to waste it.

Also training the food service staff was important. This also connects to the question that was raised earlier about why aren't there more share tables. People keep telling us they can't do that. We also encountered that. We encountered food service directors and business administrators saying they told us -- who is they -- they told us we can't have share tables.

It is important to train the staff on what are the best practices for reducing waste, what you can do and how should we do it and what yields better results.

Then, of course, recovering uneaten food for share tables. Of course, once you do all of that, you will always invariably end up with some food that will have to be tossed out. Rather than

tossing it into the rubbish, we separate the food waste and try to divert it away from the waste stream.

These particular schools were able to compost on site because they were given money for composters. We do have some schools in the program that collect it and then have it sent off site to be recycled elsewhere.

The next slide is some visuals. These were photos from the three pilot schools, some of the different activities they did. We had the Catrambone School in Long Branch doing the food waste. They did their own waste audit version in the classroom and used that activity to do math lessons. Doing activities where they were regrowing food from like ends of carrots to understand how food is grown and to appreciate it. And also using the compost as the end product. A lot of schools are interested in school gardens and there is a lot of great education around what goes into growing

food and also what is healthy, what is nutritious food. It encourages kids to eat, actually try the salad or the vegetables.

That photo with the kids in front of the van is from Newton. They are very lucky because they are in a rural county and have easy access to farms. As part of their enrichment programs they will actually visit farms. They do gleaning. They will try recipes. I think -- I don't know if this is the eggplant picture, but one visit they did get a bunch of eggplant.

That kind of gives students a better sense of where their food is coming from and to develop an appreciation for it, which is a very critical component in changing behaviors, to avoid waste.

The next slide. The food waste audit is like a big deal. Some schools are a little bit nervous about doing it on their own. Rutgers was great about,

they took care of it for these schools. We do have some schools that are able to follow the guidance and do it on their own. It is important for getting a picture of what are we wasting? Let's see, how can we -- what can we do to reduce it.

Some schools were shocked how much milk -- we don't have a picture of the milk but it would be buckets of milk that would just be poured down the drain. If you were tossing the milk individually in the little cartons you may not be aware of how much milk is being thrown out. This picture is from Catrambone. It was when there was a lot of issues with supply chain, post pandemic. So they were trying out a new rule and it didn't go over well so there was a lot of bread.

The audit, yes, it is essential to get a handle on your waste stream and to kind of identify what are the different components being wasted. What we found, it has a huge value, it makes a huge

visual impact of how much waste. If it can be done with the students so everybody can see, we find this is really a great trigger for having people saying oh, my gosh, this is serious and real. Let's do something about it.

Training of the food service staff. I don't want to minimize how challenging this can be. Schools are actually facing some very challenging circumstances. I don't know if or when it is ever going to go back. It is everything from shortages of bus drivers to they can't get teachers. We have curriculum supervisors that are now teaching because they can't get enough teachers. Food service staff is very high turnover in some districts. Some of them can't even find a food service director.

Sometimes when you go to them and say we want to do this, there can initially be some resistance. But if you are able to train them about what you are trying to do and the reasons behind it,

very often they are receptive and then they will come along. The other thing we found is, it is important to do training at least once a year. One, you are going to have turnover. Two, even if you have the same staff coming back year to year it is important to reinforce and refresh that information, that knowledge.

This is just a few -- this one is huge, offer versus serve. We found that if you are serving meals, especially for free and reduced lunch, it is required that there are certain components that make up the meal that have to be served if the school is going to be reimbursed for it. There is a lot of misconception, similar to "Oh, we can't do them a share table," it's like of like "We have to give them milk" and it ends up in the trash.

There is flexibility because many years ago there was recognition that a lot of food was being wasted. So there were new guidelines. They are saying you

don't have to give them all the components. As long as they have three or four of the components, we just have to make sure that the food service staff is aware of that and acting on it.

The next slide? Some of the other interventions, there are a lot of things that can happen in the cafeterias that boost food consumption, make the environment more appealing, like your menus and posters. But also, things like using a milk dispenser instead of offering cartons. That is a little difficult because actually there is a program that promotes that but I was looking at it and I don't know that it is available yet in New Jersey or at least in all parts of Jersey. Things like offering precut -- instead of giving, especially younger kids, a whole fruit, cutting it up into wedges. A lot of kids would take one bite of an apple and then toss the rest away. If there is a bite taken out, you cannot put that on the

share table and then the whole apple goes into the waste.

On the next slide, these are hard, the policy interventions, especially the time. Time in a school day is very precious and it is very difficult to get administrators to agree to increase lunchtime. There have been studies that show if you even increase the time by five minutes you can boost consumption.

We surveyed -- some of the schools surveyed kids, after asking why did they not eat all their lunch and there were quite a few who said they didn't have enough time to eat all their food.

We did have some schools trying to have more kids have their recess before lunch. That is so they would be hungry and eat more of their lunch.

The next slide touches on food recovery. All the schools did try this. That is a poster at Newton School about making sure the kids understood which foods they could share and which foods

they couldn't. Then the fridge at the end there is from Catrambone School in Long Branch. Their school board put money in the budget -- I think these fridges were a thousand bucks. They bought one of these fridges for each school. Even though we did the pilot study only in the one school, they decided to buy fridges for all the schools in Long Branch, I think there are like 11 schools in Long Branch and they implemented the share tables across the district.

The next slide shows the school buses at Long Branch. What we do is encourage the schools that did the share tables to share within the school first before going out, rather than sending it out to donation. This is the way Long Branch did it. They collected the food, they had it in their fridge. When the kids were lining up, getting ready for the bus, they brought the carts out and told the kids they could take the food

home. They knew they couldn't eat it on the bus but they could take it home.

The next slide is diverting the food to go into the compost. That is the example at Delran.

Then the next slide, and then the next, this is showing some of the different composter systems. The one on the top is, the one was in the lunch room. Delran had their composter outside. That is to show the choice, that some school districts actually do not compost on site but send it to another facility.

The next slide is composting gardens.

The next slide, Catrambone have fantastic gardens. In addition to having activities with students where the students will harvest and cook and try out recipes like salads, they also do a lot with donating to their community.

Sustainable Jersey has integrated these into our actions. We are driving

implementations of this through our actions and our toolkit which is on our website.

The next slide I have the different actions in the program that schools can complete towards getting certified. They need 150 points. That is kind of giving you an idea of how many of these -- how much this would contribute toward certification.

This is how we have been sharing this, through our road show. We go to webinars, conferences. We do ongoing support to schools. If schools call us for help, we will help them figure out how to implement the stuff.

The last slide is our recommendations. This kind of echos what was said previously. Schools still think they can't do this. It is just really to clarify the guidance on implementing share tables and really to push it to schools.

Also to facilitate -- Gary talked

about the small scale composting and to facilitate schools handling their own food waste within the district so they don't have to get permitting if they want to do that. And also to increase options for sending food waste to external recycling facilities if they are not able to recycle on site.

I don't know if I have times for questions. I went over time. Thank you for that.

CO-CHAIR CONNOLLY: Maybe just one question?

(Audio interruption.)

CO-CHAIR CONNOLLY: She asked which school in Long Branch was it.

MS. LAMBERT: George L. Catrambone. They are a great school to visit.

Thank you.

CO-CHAIR CONNOLLY: Our next speaker before lunch is Brian Blair. He is General Manager of Trenton Renewable Power LLC and President of Biogas Operations LLC, which commenced

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commercial operations of Trenton Biogas, New Jersey's first food waste anaerobic digestible facility of 2019.

His notable achievements include the introduction of anaerobic digestion of food waste to New Jersey in 2007, development of the Salem County Sustainable Energy Training Center in 2009, development of a 39-acre sustainable energy park and the development of a distributed energy resource micro grid in Salem County.

With 25 years of industry process experience in total waste management, waste recycling, waste gasification, bio fuel production and sustainable energy process design Mr. Blair is focused on decarbonization solutions to reduce dependance on fossil fuels and the concerns of climate change.

MR. BLAIR: As you hear from my bio on what anaerobic digestion can do to food waste -- given the task of speaking to an audience about reducing the impact

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of food waste on air quality, I thought it was pretty important to bring forward my most recent work about carbon reduction and anaerobic digestion. I will talk a little about our company and what we do to reduce carbon in the atmosphere by processing food waste.

Before I jump into it, I want you to know that I started this lifecycle analysis process working with Rutgers going back to October, maybe November of last year, looking at what the full carbon footprint is of an anaerobic digestion facility that produces electricity. It was a long process. What I found is that some of the really good experts are in California and they are not really sure what to say about New Jersey. Some of the experts in New Jersey are not really sure about anaerobic digestion as you put electrons into the grid.

So we set off on a task to bring all the talent to the table, ask a lot of

questions and perform a lifecycle analysis.

Near the end of that process, the federal EPA produced a document entitled "Quantifying Methane Emissions From Landfill Food Waste." That document was written in October 2023, published in December. So, really at the last minute and at the end of our process. It was fascinating to read. That document kind of captures the evolution of an understanding of emissions from landfills over time as we see them and as we can measure them.

The bullet points here, and I think everybody knows, Gary has talked about it and we are all familiar with it, the bullet points are that when you put food waste into a landfill it begins to decompose in the first eight hours. Within 16 hours you are emitting CO2 and methane, and daily cover doesn't really capture that and there is leakage through the daily cover, even though our

landfills are so well managed compared to landfills of the past.

We really can't avoid, unless we put a permanent cap on that food daily, we can't avoid that leakage or those emissions.

When we look at some of the data from landfills, what we realize is this leakage number is the big number that we haven't been able to manage yet.

We know that after two or three years, what we have learned from this and from reading this document from the EPA is how important it is to take the food out of the landfill. Not only is it reducing the methane emissions but you are also solving some hydrogen sulfide issues that occur long term in landfills. We know that when that food and other organics will continue to go into landfills and within a couple years they will continue to make methane and we will continue to pull vacuums on those landfills and extract that gas.

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The idea is to really focus on getting it to a better use. I am a big advocate of composting, just so you all know, because I am a big advocate of carbon reduction. If you think about the second largest carbon emitter that we have in the United States, it is vehicles. If you are packing all of your organics into the truck and shipping it for miles down the road you are actually producing carbon, a pretty significant carbon footprint.

If you have a dense, small population of food, you should compost it. Keep it local, keep it out of the landfill, aerobically finish it and put the nutrients back in the earth. Reality of the industry is a little different, though, when you get into big commercial generators.

Now I will jump into my slides. A lot of people probably have seen them before. I will talk about our facilities specifically. Our nameplate capacity is

450 tons per day of food. If you think about that, to put it in perspective, Veronique's study found there were 34,000 pounds a year from a population of 1,700 students, which would be a regional high school. That works out to one and a half tons per week.

I think that is about how that works out, or 1.5 cubic yards a week. You can think of a two-yard container outside the school that all of their food would fit into. That makes sense. If you have to move that food a long distance, it starts to not make sense. I want to talk about what we are trying to do to help that along.

If you can't compost it, and you don't have a spot to do it, we worked out a couple of solutions that makes sense if everybody is on board. How we do it, we say by combining advance material handling. We basically focus on packaged food. There is a significant amount of packaged food that goes to landfills. It

is not easily fed to animals. If it goes to a farm, it is producing a solid waste problem at the farm by the time you get packaging removed.

Our equipment removes that packaging and puts the organic product into anaerobic digesters.

We think about the food hierarchy. We try to get food diverted to farms to feed animals when we can, certainly people when we can. Again, advocates of composting. We are obviously fully married to the deal of anaerobic digestion and I will talk a little about that.

This is the front end of our facility. We actually recycled this building. This building was a sludge management facility built in the '80s or late '70s and never operated. It was designed to drive biosolids from sewage treatment plants. It sat mothballed for a number of years, I think 15 years, and we retrofitted this building for

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anaerobic digestion of food waste. We have three receiving bays.

What is important here is the complexity of the food. This is a walking floor trailer coming from a produce market. You can see there's very complicated packaging in this truck. There is wax cardboard boxes, nets of onions, plastic packaged food. So we rely on our front-end equipment to separate all of that into recyclable, what we can recycle out of the packaging portion and organic engineered bio slurry, which then goes to anaerobic digesters. Very similar to waste management's core facility, they do the same thing. They depack it, get the organics out to the anaerobic digesters.

Next slide. At the end of anaerobic digestion, we produce a solid nutrient material. It is like a compost product. It has kind of a light flurry feel to it. It's a pathogen free, nutrient rich soil amendment. Pathogen

free because we are operating at 52 degrees Celsius. That is, thermophilic temperature destroys pathogen seeds and things like that that would make their way back to the end product.

One of the people asked a question what happens in digestion, what happens when they send their stuff to a wastewater treatment plant. Basically, that food is moved and carried with water. When you put it into a vessel, a closed vessel, you keep it at a certain temperature, you have just created the same type of environment that exists in your stomach. It is an oxygen-free environment, it's just the right temperature. The bacteria that is readily available in that food go to work to break the food down and convert it into gas.

It is a process of hydrolysis, so it goes through fermentation, a CO genesis, methanogenesis. And those

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methanogens, those bacteria are basically reducing -- after the food has been reduced in size, producing a biogas. Biogas is a CO2, methane and a little bit of hydrogen sulfide.

What we do is collect that biogas into a storage membrane and we feed combined heat and power engines to produce electricity and we put that electricity onto the grid. That's a tough business in New Jersey, to produce electricity and put it on to the grid. I think that most of you in this room are sensitive to what is going on with the electric grid, sensitive to the electric vehicles coming online, the charging infrastructure. Most of you probably know that New Jersey imports a significant amount of its power.

So, I will pause there. That is what we do today. We are doing an expansion, working on an expansion plan that will bring another potentially 600 tons of material, organic material,

which includes biosolids in the expansion and food waste, co-digesting, using a wastewater treatment facility to put renewable natural gas into the pipeline, we also think it is important.

We think the State of New Jersey needs electricity, needs sources of electricity from a distribution network much like what we have in wastewater treatment plants throughout the state. So we are about to be launching a co-digestion facility to prove that concept and hopefully roll that out with the larger footprint in the state.

We do have a customer that has an electric tractor trailer. They are in South Jersey and they are working on getting that electric tractor trailer to our facility so we can charge them while they are unloading their food product at our facility. That is as good as it gets, when you can charge an electric vehicle with a carbon negative fuel.

The next slide are bullet points on

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the facility. The top picture, you see the different types of material that are being dumped. You see the plastic residuals, compost residuals. It works out to 110,000 tons a year.

This number, 480,000 tons of CO2 emissions eliminated from landfill. That number drove me crazy when we got into the lifecycle analysis because that number is driven by EPA's Greek model, AVERT model -- there is three models that we use. They all settle to this number of CO2 emissions eliminated.

When we went through the lifecycle analysis and thought what are we really eliminating? We have fork trucks outside removing material, we have a machine that mixes material, trucks going in and out, we have gas engines that have an emission. How does this work out?

End of the day, our lifecycle analysis results in about half of that because we have emissions. So, for every one ton of food that we are bringing in,

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we are removing or sequestering 2.2 tons of CO2e. It is a big deal. It is a big deal when you can get a full net reduction in emissions from the process. If you think about the stuff we love and celebrate -- solar, wind, nuclear -- these are fantastic technologies that is carbon neutral. This is a carbon negative technology.

How important is that? We can take the food out of the landfill, run it through this process and actually reduce carbon in the environment. It is pretty important.

The next slide. This is an example of how we put together the lifecycle analysis. We worked again with Rutgers on this, really looking at putting bookends on our process. You can go a little crazy if you start to go outside of your process flow and try to figure out things that you can't control. But this is what we can control.

This is everything coming in and

everything going out. Sometimes we are reducing emissions just because we are producing a liquid fertilizer product that is produced without using coal-fired electricity or gas-fired electricity. So you get some points for that. That is basically the methodology that we use to do the Scope analysis.

Next slide. So I am sure everybody in this room is familiar with GWRA 80x50 report. The focus on priorities here, the priorities being climate, priorities being with Executive Order 89, the focus is climate. Carbon reduction.

The New Jersey report on climate change. It is actually disturbing to read that and look at how significant our environment is impacted.

The Scientific Advisory Board Report also focuses on methods that we can deploy to reduce carbon emissions particularly using food waste. Those are all very, very important documents. They make our focus on reducing carbon

emissions by finding a better thing to do with the food. Anaerobic digestion is carbon negative.

Next slide. I am going to leave this slide. I guess it will be available for others to talk about because I will be running out of time. But one of the big problems here is that the economics of anaerobic digestion of food waste making electricity are not wildly strong. In fact, you are competing with the cost of waste disposal and to draw the food into your facility.

While climate and sustainability is our priority, the grocery store's priority is to stay in business and reduce costs. It is very important that they are not running up their bills to pay more to get food into your anaerobic digester So what they do is generally send it out for less.

Our tip fees in our facility are about half of the tip fees in Mercer County Waste Flow Control District. And

it is still hard to draw the food in because it is economics. You are not going to raise the tip fee to make these type of facilities sustainable. And you are not going to cut your staff or cut corners because you have to do everything right. The only thing that remains it getting that energy value, the correct energy value, getting value for carbon negative energy, not carbon neutral but for carbon negative.

I have a list of questions of what things we need to change. I believe the number one thing is to put more value on the carbon negative energy from AD so more of these sites pop up at the wastewater treatment facilities and we get a little more incentive to build more of these.

No similar programs exist for biomass facilities even though they are the most carbon negative of all class renewable technologies recognized under New Jersey law. It's a strong statement.

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I have some ideas about the food waste law. It could be modified and it could be modified to the betterment of some of the facilities that have huge amounts of waste but are just outside of the existing regions right now.

We have some ideas about enforcement that relate to the generators, that relate to the haulers. These are all ideas that would be healthy for really all of the participants.

Current bill that Gary talked about, very important. There is a couple things that we would like to weigh in on as far as accelerating that bill. But working on the rate so that you can get an energy rate to make that more effective.

I am happy to take questions.

CO-CHAIR CONNOLLY: Thank you. Questions from Council, please?

MR. NEUMAN: Adam Neuman --

(Inaudible.)

MR. BLAIR: The last question was

about how many jobs does the technology like this produce, because that is important as well. We talked about our facility generating 21 full-time jobs and 100 ancillary jobs and certainly creating jobs, creating an economy and bettering the region.

MR. LAUMBACH: Rob Laumbach, Rutgers University. I had a question about the small amount of hydrogen sulfide in the gas and how that is managed. When it burns, does it produce sulfates, for example?

MR. BLAIR: You want to take it out. Your wet biogas leaves an anaerobic digester with that hydrogen sulfite component. So at the end of digestion, your sulphur-generating bacteria inevitably will produce a percent or 2 percent of your total volume as hydrogen sulfide.

You have to take that out. So you run your gas through a gas cleaning system that precipitates that H2S as

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sulphur, elemental sulphur, and then also drops the moisture out of it so you end up with a dry biogas that is being combusted.

It doesn't make engines happy, it doesn't make gas grids happy and it doesn't make neighbors happy if it's lofting into the environment. You capture it and bring it to its elemental form.

CO-CHAIR CONNOLLY: Thank you so much, Brian.

MR. BLAIR: My pleasure. Thank you all.

CO-CHAIR CONNOLLY: A great morning so far. We are going to take a lunch break and be back at 1 o'clock.

(Recess.)

CO-CHAIR CONNOLLY: Thank you. Hello and good afternoon. We wanted to put on the record that we donated all our leftover lunch to other DEP employees. None of it was wasted.

We are back again and have a few

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more speakers to go. Our next speaker is Dr. Sara Elnakib, is an Educator, Associate Professor and Chair of the Department of Family & Community Health Sciences at Rutgers Cooperative Extension.

Her research focuses on the use of policy, systems and environmental approaches to promote child health equity and environmental stewardship, primarily in school and community settings. Sara has received research funding from USDA, EPA NJDEP and Horizon Foundation to research the intersection of nutrition literacy, environmental education and healthy eating.

Her dissertation focused on food waste in the school setting and how behavioral economics can be leveraged to reduce food waste. She completed her doctoral degree in Social and Behavioral Health Science at Rutgers School of Public Health.

Sara is also a Registered Dietitian

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Nutritionist, has a Master of Public Health degree in Health Education and Behavioral Sciences from the University of Medicine and Dentistry of New Jersey, and completed her undergraduate degree in Nutritional Sciences at Rutgers University.

Dr. Elnakib?

DR. ELNAKIB: Thank you all so much. And thank you for this honor. I really appreciate the opportunity to share a little bit about what we are doing at Rutgers Cooperative Extension to support some of the local work within communities.

Just a little background on Cooperative Extension. Rutgers Cooperative Extension is the outreach arm of Rutgers University, located in all 21 counties across the state. There are three main departments within Cooperative Extension. Agriculture and natural resources, and that's a department that does a lot of horticulture and

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agriculture education.

4H youth development. A lot of people know about 4H. They don't recognize it as part of Cooperative Extension, but it is.

And then my department is the Family & Community Health Sciences Department.

Our department focuses on health and nutrition across the state. The blue New Jersey map is our faculty and staff that are federally and state funded and locally funded. Then the red map is our grant funded map. We cover the whole state and we work across different areas of our work to improve health and wellness overall for New Jersey residents.

These are the five key areas our department primarily works in. Community food systems, chronic disease management prevention, food literacy, which includes food preservation, nutrition policy and school nutrition, which focuses on not

just teaching kids in K through 12 schools but also looking at nutrition policies in schools, which we'll touch on a little bit today. And wellness, which encompasses a large area of physical literacy, mental health and a lot more. The focus of the work we are doing today is really on that, community food systems sections.

Our food waste team is comprised of four people of which I am one. We are across collaborative team with different departments from Cooperative Extension. We started in 2017 based out of Patterson Public Schools and now are in 11 of the 21 counties supporting food waste work across all those counties.

We can reiterate this again and again and again but it is really important to recognize food waste is a major issue here in the United States and accounts for about 80 billion pounds of food waste produced every year.

That is enough to cover the Empire

State Building about a thousand times. The scale is really, really high. The FAO did an analysis of food waste across the food system to see where food waste is generated the most. As we know, perishable foods are wasted a lot in the beginning of the food supply chain. So, production, things like produce, fish and meat. Things like that are wasted at the top. During manufacturing processing we droned down on reducing food waste a lot. When it comes to consumer level, we waste indiscriminately. We waste everything and we waste a lot of it. So this is where the focus of our work has been, in that consumer level waste.

We know that food waste matters because it has a lot of impacts. It has environmental, economic and social impacts. Globally, if food waste was a country it would be third largest emitter of greenhouse gasses after China and the United States.

We know that food waste produces

methane, but collectively all that methane actually is a lot more than places like India, which is one of the highest economies.

Economically, we not only waste the 30 to 40 percent of food and all the resources that go into that food but also the landfills and all the things we have heard of transporting and moving some of that food.

Socially, obviously we can't have this food waste issue alongside the social inequalities and food insecurity that currently exists in our country, in our state, one of the largest states, as Gary mentioned. So it is really a critical issue that can tackle a lot of different problems and support a really collective solution.

The EPA had a beautiful pyramid first and now they have this "U" which I don't know how I feel about yet. But it goes from left to right and focuses on the most preferable, to least preferable

way of reducing food waste. In the beginning, they want to prevent food waste at the source and donate or upscale food; all the way toward the end it is composting and anaerobic digestion. We've heard of a lot of solutions. Our work really focuses on the left side of this, trying to reduce it at the source or donate and upscale it as much as possible.

We know that both United States and in New Jersey we have had a real push to support the UN's sustainable development goals of reducing food waste by half by 2030. In United States, it was 2015 when this was established, in New Jersey it was about 2017. We really want to try to reduce food waste by half by 2030, which is very few years away. We really need to get on top of that.

We know that both at the national scale as well as at the local scale schools have been a focus because they are in every single community across the

state and across the country and can produce a large amount of food waste. So the USDA developed kind of criteria and supports to help reduce food waste in schools, which I will get into a little bit. Then the state, through the law to reduce food waste and establish this goal, required DEP, as well as other departments to work together to develop these guidelines for schools and higher education in reducing food waste.

So we know that from the research there are five key areas that help reduce food waste. First is cafeteria changes. Things like actually measuring the food that you are wasting. Or like Veronique said, cutting up or offering milk dispensers. Things like that can actually reduce the amount of food children waste. Additionally, things like altering mealtime. Mealtime scheduling changes can actually improve food waste reduction. So things like adding five to ten minutes to the meal or

having recess before lunch. Improving food redistribution, so training staff and faculty on share tables or donating excess foods or redistributing that food within the school.

Educational programs. New Jersey is the first state to require K through 12 climate change education. We can leverage that to reduce food waste through teaching about climate through food systems, something that students have an easy grasp on.

Finally, connecting the food waste sector. Schools don't live in a vacuum. They are part of cities and they are part of counties so they have to be inspected by health inspectors who can support or deter people from reducing food waste and increasing donation. So that is one of the places that maybe we see an opportunity for this Council to make some recommendations.

I am going to go through a few case studies quickly to give you the breadth

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of the resources that are out there that we have tested. Not only in the literature somewhere out there but here in New Jersey to ensure that this works here in New Jersey and some of the results we found. I also share these slides and they all have references in there so you can pull up the papers if you are interested in some late night reading. They will be here for you.

We started our work in 2017 with Patterson Public Schools. We were trying to figure out how we can reduce food waste through training food service staff on some of the cafeteria changes that can be made to reduce food waste. We did things like change the cafeteria environment, we changed some of the menu options, we audited the food waste that was being produced. We found that we saved about 14 percent of the food just from doing education program for the food service workers who were helping put together the food for the students.

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Then we moved on to New Brunswick Public Schools where we tried to start share tables. We worked with New Brunswick Public Schools that were across or near Elijah's Promise, which is a food pantry and soup kitchen, and we basically tried to get the students and the school instructors to just learn about why share tables are important, how to make sure they do it safely, and then trying to donate the excess food, either redistribute in the school or share it out to Elijah's Promise, who made cheese from milk and lots of different interesting things through their culinary programs. We found this is one of the hardest things to do in schools because people were really reluctant because of the liability associated with it.

We decided to do a deep dive to see what is it the other states do. We are not the only state grappling with the issue. We did an assessment of share table guidelines, whether they are

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regulations, guidelines or supports, to see what are the standard operating procedures.

A lot of schools were just worried that they would get audited either through their health departments or through the New Jersey Department of Ag because of the funding associated with school meals, that they wouldn't be able to get reimbursed. All of that is not true. It is safe to donate food. I will talk a little bit about that as well as the USDA and NJDEP understand the importance of share tables and actually recommend it.

It is really important for states to say that because when other people say that, we don't have as much authority as the state. So it is really important for states to come out and say that.

You can see in this map we want to be more like the orange and green states that have regulations and standard operating procedures that are set out by

the states as well as guidelines or guidance, because those are the states that are really strongly saying this is what is allowed and this is what is not allowed. This is a paper that we wrote about the standard operating procedures and how important they are to ensuring people actually do distribute food and donate food properly.

This led us to work a little bit with the Harvard Food Law and Policy Clinic to develop actual legal fact sheets around what are the legal parameters that are associated with food donation, tax incentives, liability protections. Things like that.

They did a deep dive. That is to review a lot of this work and they actually found that New Jersey has one of the oldest and strongest liability protections for food donation. In addition to the federal Good Samaritan Act at the U.S. level, New Jersey has its own Good Samaritan Act that actually

protects people even more.

This is really important to recognize. We use some of this information to co-develop, with the Department of Health and Department of Environmental Protection, health inspector training to help health inspectors understand the importance of food waste reduction and how donations are safe and able to be conducted.

We piloted for a few years and now we are hoping to redistribute that. All of this is available online as a resource to folks.

You heard about the program that we did with Sustainable Jersey where we not only included some of the cafeteria changes but we also supported the share tables. We were taking these two different programs, putting them together, these two interventions and see what results we found.

We found that alone, just the program with the changes to the cafeteria

and share tables, we reduced food waste by about 45 percent. When we have added a composter to the school, we reduced food waste by 92 percent. That is a lot. Only 8 percent was going out. On top of that, we had about 21,000 pounds being distributed within schools to hungry children or hungry families.

This is what the food is intended to do and it's actually going to where it is supposed to go. This was a really great case study for that.

Finally, we received generous funding from the DEP to do a curriculum intervention. As I mentioned, New Jersey is the first state to require climate change education for K through 12 schools. Our team thought why don't we teach climate change through the lens of food. Every child understands food. Sometimes air quality, transportation, all these things are outside of their realm of control but food is in their realm of control. We thought why don't

we work with students and teachers to develop this curriculum around climate change education and food waste reduction and see how they feel that they can impact climate change.

We saw there was a 58 percent reduction in food waste, reported food waste after the intervention, which was very exciting. We saved in one school about 1,135 pounds of food from the share tables. This was only for 5th grade alone. This paper was actually just published two weeks ago so we are really excited to share it. Also, we are hoping to publish the actual food waste paper in the next coming months. We are hoping to share that soon. I thought it would be really interesting for you to hear directly from the people that were part of the program.

The next slide has a short video, which is within my 20 minutes, to show you what they thought.

The next slide, please?

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(Technical difficulty.)

DR. ELNAKIB: Oh, well. We'll forward it to you. We will send that to you and hopefully it will work on email.

Now that we have seen that different parts of this intervention work, we want to put them all together. Through an AmeriCorps Grant, we are working with AmeriCorps service members to develop the New Jersey School Climate Corps Program, which will incorporate education with climate change education with school cafeteria education and share table education, connecting the food service sector to the food security sector to support a holistic intervention.

This is taking place right now in 11 counties across the state. We are really hoping that this will show us that a comprehensive intervention actually reduces food waste even more.

Additionally, we got funding from New Jersey Health Foundation to work with

the psychology program. Climate anxiety is a real thing among our youth. We want to make sure we are teaching climate change in a responsible way that they feel empowered and not scared. We are integrating more education specifically on evidence-based behavioral activism and how they can support to feel empowered.

What are our recommendations? These are also our goals. Our recommendations and goals are to install share tables in every single school district across the state. That is 500-plus school districts. We believe if we do that, then Dr. B.'s comment about his synagogue wanting to donate the extra food will not happen because the school is already using that donation properly. Schools are a great way to ensure that we create the infrastructure in this state for more donations.

The other is to strengthen the New Jersey guidelines. As I mentioned, New Jersey has guidelines right now but we'd

love some kind of teeth behind them to help people understand this is something New Jersey finds important, to support safe food donation.

Also, support policy improvements to the composting program. Right now districts, if they want to compost, they have to have a composter on every single school site. You can't have a composter and have food delivered from two blocks away. You have to have a composter on every site. It is expensive and doesn't make a lot of sense for school districts who are tight on budgets. So it is really important to improve those policies.

Also, establishing partnerships between municipal health inspectors and the food donation sites. Really, being that convener and connector. Because New Jersey is a home rule state it gets complicated but we can do it. We can figure it out. We are trying to emphasize empowering local communities to

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be the voice in supporting that.

Expanding climate change education to focus on food waste. We saw this worked with the New Jersey Leaves No Waste Behind. Let's get that curriculum and program expanded into every department and county.

Finally, the last thing is to really expand to colleges and universities and other institutions that can support some of the food waste donation.

I have some more resources for you to take a look at. These are all Rutgers and State of New Jersey resources that we developed together.

I am happy to answer questions.

CO-CHAIR CONNOLLY: Thank you so much. I will ask a question.

Where do you see schools -- probably it's a good question for Veronique, too. Where do you see schools on the food waste generator list? Would they be one of these top businesses in

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New Jersey that are generating so much waste? Where would they be on that list?

DR. ELNAKIB: ReFED has a lot of good data on food waste generators. They put schools in the institutions category, but we feel schools are a good lever to start the conversation about food waste for multiple reasons. First is not necessarily because they produce waste but because they produce waste at scale.

Every school is open 180 days plus or minus a few days. Plus, every school district has multiple schools in them and we have 500-plus school meal authorities. Just the scale alone can really, if you are counting schools as a sector, scale alone can make an impact.

In addition to that, they are the next generation. We are retraining -- think about recycle and reuse. All of the education started at K to 12. That is how we got to where we are now. I think it is kind of meeting this issue from multiple angles, both educating

youth and empowering them to make decisions around their food environment but also reducing waste that we have currently existing in our food system.

We know from the research that youth today, specifically adolescents, are more passionate about climate and social justice than other generations in the past. And so this idea, we should leverage that, use that to our advantage to help us reduce the waste.

CO-CHAIR CONNOLLY: So they are the problem but also the solution.

Next question?

MR. HANNA: The case studies that you and Veronique showed were really, I am sure for other Council Members, too, very inspiring. It is so great to see real examples. We hear a lot of policy talk and data and things but it's great to see students working on things and making a difference.

Two questions: If you can't answer them, maybe you can point to where we

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might find the information or if it is just not available yet.

If we were able to scale up your collective New Jersey school experience from a Clean Air Council standpoint, we'd love to know what kind of emission rate impact do we have. What would be the reduction -- you show good reduction in waste. What would that translate to statewide in terms of greenhouse gas emission reductions? Has anybody scaled that yet?

DR. ELNAKIB: Yes. ReFED actually has kind of a remission rate calculator by sector. But that is for the whole U.S. We can work with them to figure out what it would be for New Jersey based on their algorithm, basically figuring out how many schools and school size and things like that to figure that out. But it is definitely something that is out there, that exists, and that we'd have to make it work for New Jersey to figure out the numbers.

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MR. HANNA: In terms of developing policy or making recommendations, it always helps us to understand the cost benefit and the reward that's out there. It sounds like it is material and it's big.

The other part of my question was, in terms of scaleability, I saw enough to see that you are both believers that it is something we can do statewide. What kind of timeline would that be? We also think about things that are short term versus long term. Where would we put this in our recommendations in terms of expectation? Is it a 2030 thing? Will it help with that 50 percent significant reduction?

DR. ELNAKIB: Certain things are definitely scaleable with policy. Things like share tables and food waste education, we can do that with policy. Once you put in the policy, now every school in New Jersey is teaching climate change education. That didn't happen

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five years ago. Certain things are scaleable, easily scaleable with policy.

The climate change education curriculum that we developed for 5th grade was an NJDEP Grant that we received for two years. We developed it and now it is available for all New Jersey schools. Every single one. And it's tied to science standards and the climate change standards. So, they are easily things that happen. Certain things are easy with policy, share tables and curriculum being two of those things.

Other things are a little bit harder. I think trying to connect the food security sector and trying to get health inspectors to support food donation if they don't already do that, things like that, that takes a little more time and I think will need a little bit more effort; that is not policy oriented. You can't just put a policy on those things. They need to be collective work we do together.

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MR. HANNA: You can establish policy. If it is something you can demand, you have to put a timeline on it, too. That is part of what we are thinking through as well. Okay. That is a good answer for now. Thank you.

DR. ELNAKIB: You are welcome.

CO-CHAIR CONNOLLY: Rick?

DR. OPIEKUN: Rick Opiekun, New Jersey Department of Health.

Great presentation, great results. Just curious, though. Are there any additional hurdles that you have seen when it comes to EJ communities, specifically areas that are noted for being food swamps and food deserts, how these type of programs are received and/or implemented? Any differences or any problems with that?

DR. ELNAKIB: Such a good question. Thank you so much for that.

I love Sustainable Jersey. I think it is an amazing program. But it is a self-opt program. You have to opt-in to

do it. A lot of EJ communities, like schools, don't have that capacity. Teachers are teaching too many things. They don't have the volunteer base. Parents work multiple jobs. They just don't have the capacity to do this work.

That is where groups like Cooperative Extension or other kind of municipal groups that can support some of this work can come in to support them. They need the hand holding. They are willing to do the work but they need the hand-holding and support because they don't have current capacity to do it.

DR. OPIEKUN: So it's a people problem, not necessarily a funding problem.

DR. ELNAKIB: I think the funding comes from funding the people to do the work. That's where the funding would come in. If you are targeting EJ communities, you can't expect volunteers. It's very, very hard to do. People are strapped for time. They don't have the

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time to volunteer. So I think if you are targeting communities like that, things like AmeriCorps or FoodCorps or Cooperative Extension, all those groups currently exist that come into schools to build that capacity that doesn't currently exist.

DR. OPIEKUN: Excellent. Thank you.

CO-CHAIR CONNOLLY: Thank you, Sara.

DR. ELNAKIB: Thank you so much.

CO-CHAIR CONNOLLY: Our next speaker is Len Gipson. He is the Director of Operations and Maintenance for the Camden County Municipal Utilities Authority. He has over 30 years of experience in wastewater collection, treatment and plant operations, specializing in process optimization and effective resource recovery and energy management between the Municipality Utility Authority and Philadelphia Water Department.

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Len has also assisted in the development and management of several large Public Private Partnership in both Biosolids Management and Combined Heat and Power Implementation and has played a major role in developing and implementing Long Term Control Plans in EPA Regions II and III.

MR. GIPSON: Thank you for having me. It is a great presentation I am following up on so the pressure is on.

I will tell you about who we are a little. CCMUA operates the county's wastewater treatment plant for Camden County. Our design flow is 80 MGD. Average flow, 58 MGD. Recently, with climate change, we were seeing unprecedented flows into the facility.

We're a secondary pure oxygen waste activated sludge plant. We have solar panels, as you see in the picture, to cover our primary final sedimentation tanks and a 1.9-megawatt combined heat and power facility which we'll talk a

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little about on the next slide.

So, 65 percent of the plant's electric demand can be provided by these two. On warm days, low flow days in the summer, we can produce up to 100 percent of the plant's demand.

What makes this happen? It is the four anaerobic digesters which the CCMUA built through a process of procurement and different contracts in 2021. Part of that digesters was to then use the gas that's generated for the digestion of the municipal sludge. We also built the co-gen facility which I described earlier with the 1,900 KW, 1.9 megawatt generators which use that gas and produce electricity for the facility.

Another important aspect is the heat that is generated from the engines is recycled and reused to heat the digesters. That is one of the major components of the process, to heat the sludge to 98 degrees. We don't use any external fuel for heating that and

getting that process going.

I am probably going a little fast for some of you folks that aren't into wastewater treatment. This is about 80 percent completed of what are the digesters outlined in green. We have a gas holder that is basically a wide spot in the line to store the gas produced and then used in the CHP facility.

The benefit of the digesters is it basically works like your body. We apply the sludge there equally through each of the tanks and it reduces the solids by about 50 percent overall, which is exceptional, and it sort of exceeded our estimate, which would typically be about 45 percent.

We have 45 to 50 percent of the solids reduced at the plant. That is significant for a number of reasons, because the amount of trucks we bring through an EJ community and how we interact with the community, which is right outside our fence line. This

reduced that significantly. We had ten to eleven trucks a day; this reduced it to five. Because we installed dryers, it is down to about one truck a day, which is very significant for the community.

The biogas fuel operation started in May 2021. Throughout the construction of all that, we had to get the digesters to begin producing the gas. That gas, we started to use in May and it was used again to produce on-site electricity for the facility.

If you look at the graph quickly, the electricity produced, a small amount, the natural gas consumed and the biogas consumed. When we started in 2021 we were producing 80 thousand million cubic feet a year and now we are closer to 120,000 biogas.

We basically consume everything we produce. We flare very little. Only in events of an engine failure or something. We have two engines so we can only always run on biogas. We produce enough biogas

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with the digesters to run one engine at about 80 to 90 percent capacity. We produce more electricity than natural gas to offset and reduce our carbon footprint in generating on site and for economic reasons as well.

That number, when I say 110 thousand million cubic feet, is about 300 to 350 thousand cubic feet a day that we generate from the digesters.

Next slide, please. What are the environment and financial benefits? The greenhouse gas avoidance, sludge reduction from digestion is quite significant. This is the calculation based on some EPA data that says on average approximately 1.67 metric tons of carbon dioxide equivalents are avoided for every ton of municipal solid waste. That calculates to about 12,191 tons of CO2e per year for CCMUA's 20 tons of sludge reduction every day.

Avoided energy losses and costs resulting from offsite production of

electricity typically reduce electric cost by 30 to 60 percent. We are producing on average about two thirds of our overall power usage any day given what was prior to digestion and onsite generation to now.

What is interesting here is the cost of natural gas and use of biogas. We started up the CHP on natural gas originally until the digesters were prepared. With the cost of natural gas we were -- generation cost on site, not shown here, was about 5 to 6¢ -- actually, it is 5 to 6¢ a kilowatt. We were paying PSEG equivalent to 10 to 11¢ a kilowatt. It reduced it by half or two thirds of the power that we run on natural gas.

In 2021 we have introduced natural gas with the reduction of solvents in the digesters. That total all-in cost for our generation dropped to about 2¢ a kilowatt hour with the biogas and blend of natural gas. So, very significant

when you are cutting your cost by 80 percent for that bill each month.

Here, food waste. What is interesting in the previous presentation, we are always looking for food waste. But we are not looking for corncobs and orange peels. We are looking for a slurry that is mostly digestible. We are being a little specific about this because the impacts of food waste on a plant can be significant.

So, we entered into a short-term pilot project with a waste producer that takes food waste from various institutions and creates a slurry that is about 90 percent volatile and digestible. We are looking at taking food waste that is highly digestible. What I mean by that is we will put it in our digesters and resulting solids will be nominal.

With this pilot project, the slurry we brought in, produced from various institutions' food waste collected, is processed at a remote facility from ours.

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What they bring us is a highly volatile kind of greasy -- I won't call it a milk shake because that will ruin milkshakes for everyone -- delivered to the plant. We started with 5,000 gallons a day and then went up to about 10,000 gallons, two tank trucks into the facility.

When you look at the chart that is significant, our digester operation and gas production was basically the blue line. That would represent a typical week of normal operation of the plant. With the pilot study, on the days we would bring two loads into the plant, one in the morning and one later in the afternoon, and feed that to the digesters you can see how significant the increase is, 42 percent increase in gas.

With what we had prior to this food waste addition, we could run almost one engine fully on digester gas, our original design target. With the addition of this food waste, engineered somewhat, we could then produce more than

one engine and then run two engines partially -- one fully, one partially on the food waste. This was an immediate and direct impact. It wasn't like we had to study it a long time or check the introduction. We saw this immediately. We produced almost 100,000 cubic feet additionally a day.

There are a lot of issues with logistics. We can't dump this in all at once. We are off-loading tankers. The future of this would be to have holding tanks, mixing tanks, bleed it in throughout the day and get the production consistent. Anything we do here we do very consistently over a long period of time.

What are the environmental and financial benefits? Greenhouse gas emissions from decomposition of organic waste in landfills. Both of these wastes previously in some form would have gone to landfills. Prior to digesting, our sludge was dried and became a Class A

product, acceptable in many uses and much more stable than the sludge cake. It is 94 percent dry. So by drying, digesting and drying, we have taken out half of the load that would have gone to landfills. Food waste would have ended up in landfills.

We see the great things they are doing with composting in schools. The landfills have limited capacity. Two of our drivers now are down for major maintenance. We put out a bid to take our sludge, which isn't technically Class B although we digest it. We just never entered that program. We are getting major interest from two large producers in the area. Our intention is only to use this until the second dryer is available and then we can put 90 percent of our sludge through the dryers.

If we could divert some of this food waste that ends up in landfills -- they do recover gas from landfills but not as efficiently. We are looking at

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directly from waste to gas.

Adding food waste as shown on the chart, the benefit is immediate and measurable. Biofuel directly offsets the expense of natural gas. So the more we produce with this food waste, we just offset the cost. Better for the rate-payers. Less transmission and generation from a far off source that would bring it to the plant. Tipping fees may be provided to treatment plants for accepting food waste at lower rate than landfill tipping fees, a win-win.

One thing I want to stress, this is not to just take a bag of food waste from a local restaurant. This is to have separated food waste. You don't want to end up with plastic spoons and forks. That will wreak havoc. We don't want to prepare it here at the plant. We are in a very sensitive area. We have neighbors at the fence line. We can't have odors. Everything in the plant is under odor control. This is kind of a win-win for

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people taking, collecting waste and disposing it and finding a cheaper alternative that actually has environmental benefits over and above what previously had been thought.

What we do is, it gives ability to leverage the existing infrastructure at the wastewater plant. Where we built this digesting facility for our benefit, a very substantial investment of 47 million, and the CHP was $27 million. Now for a small fee they can bring us a waste that benefits both us and them, the producer, and the greenhouse gas reduction as well.

The environmental benefits, of course. Diverting food from trash stream to landfills and/or incinerators. We have a large *trash to steam facility less than a half mile from our front door.

Societal benefits. Regulations. Again, to get less waste in the landfills. We already have the

digesters. There is also a beneficial use for the solids produced and the gas produced, so it's a win there.

And the financial benefits: Lower cost options for waste disposal. We can summarily stabilize our cost at the facility, and a gain for our ratepayers.

What are future energy needs? There's lot going on in the Delaware estuary. This could increase our electrical demand by up to 50 percent. PFAS, as you are aware, in water and wastewater is the next challenge. Most of the technologies right now to remove PFAS from bio solids is around gasification, incineration, those type of technologies. Some are scaled up pretty well, but this is something we know is on our horizon and may go nicely after our dryers. Again, there is a lot of considerations with Title V permitting, being in an EJ community, and a lot of requirements on the facility. It has to work for us, for the environment, for our

neighbors.

The storm water increased flows related to climate change. As I said earlier in the presentation, two weeks ago, beginning of April, we had basically *two of the all time highest flows ever -- came -- to the facility and a week of sustained flows at almost twice our design capacity. The county had to drain the CSO cities had to drain and prevent flooding. There is a lot going on at the wastewater plant. There's a lot of pumping, a lot of electrical cost. Again, using this gas to generate and offset power cost is very beneficial.

So what are some of the recommended actions? Require food waste streams to be preprocessed to remove trash and non-volatile solids before introducing to wastewater plants. When I saw the compost buckets in the earlier presentation, the way people are talking about it, one of the conversations we have is often about the institutions of

the state: Prisons, schools -- I didn't mean to say it in that order.

Absolutely, these are big institutions that provide a lot of food and significant waste. How do we reduce cost, reduce waste, reduce greenhouse gas emissions and have a place for it to go?

This is one of the options where how do we tap into this? It's a lot of thinking and a lot of great people here today I am sure are looking at these ways and this is one option where they can go.

The other thing is we are looking for waste streams that are liquid and digest very easily. Provide funding for incremental cost of capital investment. As you see this works and we expand our CHP for these wastes and generate electricity, maybe microgrid capacity, and accelerate permitting processes. A lot of this is new and different and doesn't mesh well with existing regulations.

Support export of excess capacity.

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Food waste recycling, landfill waste and associated methane generated greenhouse gas produced, we are going to capture that now here. There will be less there.

Wastewater plants are uniquely positioned. There is one in every major city, area and county. We are positioned in a unique way to make use of these wastes.

Again this is talking about regulations requiring food waste recycling and waste management. We know waste is a significant source of GHG emissions. How do we bring it in?

That was the conclusion. Sorry to rush through them. Again, this is a great option for food waste. Bring it to the plant. We have the infrastructure. We can do the treatment and it works for everybody from our position.

Thank you.

CO-CHAIR CONNOLLY: Thank you so much, Len. Any questions from the

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Council?

I do have a question. The technology to do this obviously exists, but I guess how much would the infrastructure cost be to bring this to other wastewater treatment facilities?

MR. GIPSON: This is where you need to partner with waste producers. To bring this to a facility is very low cost addition if you already have digesters. And most facilities do have anaerobic digesters. What you need is a segregated or prepared waste that is not full of paper plates and, like I said, the parts that are non-organic coming to the plant.

So, it is good to partner -- we are partnered with one waste producer now but you can look at companies like Coca-Cola or Pepsi that have liquid waste that are very digestible and could be brought to our facility and digested readily.

If you have digesters, it is an incremental cost. But it is the food and waste producers, how do we regulate it in

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a way that brings it to us in a form that is acceptable so we can introduce it in the form it comes.

CO-CHAIR CONNOLLY: Thank you so much.

Other questions? No? Thank you so much, Len.

MR. GIPSON: You are welcome. Thank you for having me.

CO-CHAIR CONNOLLY: Our next speaker is Jessica Padilla Gonzalez. She is CEO of Center For United Methodist Aid to the Community. Jessica is a forward-thinking CEO who always wants to make a difference in the world and be a voice for those around her.

She enjoys looking for ways to improve services and systems and building her team. She is a passionate public speaker who also enjoys learning and sharing.

The Center for United Methodist Aid to the Community's mission is to fight hunger and its root causes through a

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holistic and trauma-informed approach to help families and individuals in need. Jessica is a collaborative person seeking ways to enhance the experiences of business partners and the community she serves. She is an excellent communicator and is also fluent in Spanish and English.

Prior to becoming the CEO Jessica was the executive director for over a decade at Housing Partnership New Jersey after starting her career as a housing coordinator seven years before being promoted to executive director. In this role Jessica did a tremendous job developing her team, enhancing and growing programs and serving as the chief spokesperson, meeting with many municipal, county and state-appointed elected officials and other agencies involved in increasing affordable home ownership opportunities.

Jessica is online.

MS. GONZALEZ: Thank you so much

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for this opportunity to address such an important issue facing our community, which is food insecurity, and discuss how we can utilize food rescue as a strategy to support this issue and also as a means to alleviate climate change.

My name is Jessica Padilla Gonzalez, CEO of CUMAC, one of the largest food justice antihunger organizations serving Passaic County for over 39 years.

Just to give you some background, what is food insecurity? I have been at my position about a year so I have been doing a lot of research and getting to the core of what food insecurity is. I wanted to make sure we had a clear definition.

Food insecurity is much more than just hunger. It is the inability to have physical, economic access to sufficient safe and nutritious foods that meets a household's dietary needs and food preferences for an active and healthy

life.

Another way to understand food insecurity is when a household has to worry about where and how they will afford the next meal or if they will have enough money to cover groceries at the end of the week or month.

When we consider food insecurity in this light, the worry or stress of not knowing if you will have enough food for your family, we come to realize food insecurity is a public health issue that affects and can affect almost every New Jersey household regardless of their economic status.

Something really important to address when talking about food insecurity is that it is not a poor people problem anymore. It is a public health issue affecting all of our communities and, unfortunately, is on the rise.

Who is currently affected? According to Feeding America, more than

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44 million people in the United States face hunger, including 1 in 5 children. Latest data from FRAC, Food Research and Action Center, states that in 2023 the average rate of food insecure households in New Jersey was roughly 10 percent, which is a vast increase from prior years.

I think somebody prior to me just noted it was almost 10.5 percent. This translates to over 725,000 New Jersey residents and more than 175,000 of them are children who are unsure where their next meal will come from. This is an unimaginable statistic as New Jersey is one of the nation's richest states and have the fifth lowest poverty rate according to recent statistics.

So accros the state with my pantry partners we are seeing food insecurity on an increase and are also all trying to determine how we will meet this growing need. The consequences of food insecurity ripple throughout our society.

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It not only affects those individuals directly impacted. It impacts their physical, mental and financial situations. It also strains our healthcare systems and perpetuates cycles of poverty. It is a complex issue that demands our attention and action and we need to make sure we are talking about it.

At CUMAC we are taking action every day to address this public health issue. As I mentioned in my introduction, we are one of the largest food distribution agencies in Passaic County, providing our community with direct access to healthy and nutritious food. We operate a choice pantry with our guests can select the foods that fit their life styles and cultural preferences.

If you see these pictures, we don't operate a regular pantry. Our guests get to make appointments, come to us one time a month and leave with approximately five to seven days worth of groceries. They

shop. They get a cart and they can pick and choose the foods they want and need. We also offer home delivery and operate as an off site pantry for seniors at a low to moderate housing complex.

The reason we provide the choice is to help reduce food waste and ensure our guests are receiving the food they want and need versus handing them groceries of products that they don't want, don't need, doesn't meet their food preferences.

Another component to the work we do and is vital is the wrap-around services. We are able to ensure that our guests are applying for assistance such as SNAP. We have a saying on our wall that says "Ending hunger has nothing to do with giving people food" because we understand that in order to alleviate that situation, have the person become self-sufficient, we provide wrap-around services which include case management, education and, most importantly, trying

to reduce the stigma of being food insecure.

We also work with the college across the street and are trying to address college hunger and reduce that stigma.

The statistics indicated above, we are also seeing record numbers of guests. Last year we served over 53,000 individuals, and the numbers are climbing. This year we are seeing a 25-percent increase each month and are proactively working on how to address this growing number. To date, as of March, we served over 15,000 individuals, which is an unfortunate record to break.

To meet our mission we are ensuring we are producing the foods our guests want and need and are taking a proactive mind set to the way that we deliver food.

About 5 years ago our organization decided to go from an emergency food provider to a proactive mindset where we actually purchase foods to ensure that

every guest that walks through our doors leaves with a complete meal.

So, our organization invested over $360,000 in buying the foods that our community said that they needed and they wanted. We purchased eggs, dairy, proteins, canned goods that they have advised us they are interested in, pastas and rice. Things that are culturally accepting across diverse audiences is really important.

Last year we did about 360,000 was our number. This year so far we spent approximately 160,000 to meet that growing need. It is very challenging for us.

As an organization, in 2023 we did move approximately 2.9 million pounds of food. That is important to note, the volume of foods that are going through our doors. Of the 2.9 million pounds, approximately 53 percent of the food was rescued, 11 percent is purchased, 25 percent came from community food bank

partner and the other came from individual donations.

This year we have moved approximately 1 million pounds of food, of which 44 percent is rescued. To be honest, if we weren't rescuing the food, I don't know how we'd be able to fill the gap.

So, what does food rescue look like on the ground? This brings me to the heart of this matter. Food rescue is definitely a solution to food insecurity and also has a positive impact on the environment. By diverting the food from the landfills, which we saw a lot of previous presenters had statistics that approximately 30 to 40 percent ends in landfills, we are not only alleviating hunger but eliminating environment impact of food waste which contributes significantly to climate change. Every pound of food rescued is a pound less contributing to greenhouse emissions.

In order for us to do this work on

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the ground, it requires us to establish partnerships with local big-box stores and retailers. I believe we are currently doing 16 sites, and that is about 10 companies. We are averaging about 2.5 visits a store. This is a full-time operation for us at CUMAC.

The majority of the food we are rescuing, again, is food that either has reached its end of shelf life, food that is not completely spoiled, that the labels may have been put upside down. But our team goes out on a daily basis and rescues it from these sites. Then we have a full warehouse team that goes and weighs the food in. We know who the donation came from.

Then we are also sorting through everything that we receive in order to ensure that it is edible and that it is something that we would eat and that we ourselves would take home to our families because we want to make sure our marketplace is a place of dignity and

respect. Any guest that comes through, we want to be sure they are getting the treatment of anybody else going through a ShopRite or any other shopping experience.

Another component to the work we do and how we are able to measure this is, approximately 7 percent of the food we receive actually ended up in the trash. I think that speaks to us receiving more quality food. But then the sad counterpart of that statistic is that if we didn't rescue it, we would literally have edible foods ending up in landfills.

While food rescue is a great means for us to do our work and reduce the environmental impact, there is a huge cost associated to this work. As an organization we were able to break down our budget and note that approximately 62 percent of our overall budget does support the entire food rescue, from picking it up, the overhead expense, to having the team and volunteers sort

through it, plus the storage and then the movement from storage into the front end of our operations.

This is kind of the suggestions piece. I did a lot of research on what policies currently exist. To further support food rescue efforts we must enact policies that ensure retailers to donate surplus food and provide initiatives for those direct donations to nonprofits like CUMAC. By doing so we not only address food insecurity but also create a more just food system.

It is also vital to note that agencies such as CUMAC, we rely heavily on grant funding. You would be surprised by how many grant funds do not directly support food, the purchase of food, the rescue of food. So, any policy and legislation that supports this purchase of food and/or rescue are vital for us, especially as our numbers are increasing.

Some of these I have noted here are specific policies. The first is really

directly diverting funds to organizations such as ours so that we are not consistently writing grants and trying to reinvent the wheel on how to address food insecurity.

The next two, 5643 and 5644 are really for the food retailers, to incentivize them to donate to us and also giving them tax credits. Like I mentioned, we have a full system of how we receive the food, how we measure the food. We are able to tell all our partners how much we received from them on an annual basis, which they can then turn around and can use for tax credits for themselves.

The final legislation I have listed here is 5645, which is the waste reduction goal for the State of New Jersey. When I read this, it is a beautiful goal but I also ask that when bills like this go into consideration, that we also look at the unintended consequences. If we are reducing food

waste and our big-box stores have less food to donate to organizations like us, we have to think about how we are also going to be addressing food insecurity.

I like to kind of compare it to the plastic bag bans, where we are doing a social good reducing plastic in the environment, but then us, as non-profits, are now having to scramble to find bags so our guests can bag the goods they leave with, or we are purchasing bags for them to be able to take the food home with them. Just the unintended consequence that fall out of bills like that are important to consider when reviewing them.

In conclusion, by addressing both food insecurity and environmental issues we can create a healthier, more equitable future for all. I think it is important for us to support policies that support both initiatives, ensuring no one in the community goes hungry and that we leave behind a cleaner, healthier planet for

future generations.

If we have any questions or concerns? Again, I noted the EPA model. We would be doing the donate and up-cycle. Food rescue does allow us to have a positive impact on both issues. As I mentioned, food insecurity unfortunately is on the rise across our states. We are seeing unprecedented numbers at our pantry and every day are trying to figure out how to meet the growing need.

It is vital that we are talking about it and I appreciate that you guys have given us the opportunity to provide this information. Thank you.

CO-CHAIR CONNOLLY: Thank you so much, Jessica. Questions from Council members?

I do have a question, Jessica. The types of foods that you rescue, they are mostly packed products. Do you do fruits and vegetables as well?

MS. GONZALEZ: Actually, you would

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be surprised how many fruits and vegetables and produce we are rescuing. It is a huge component to the rescue work. If I had a breakdown of how much was produce, I can probably get you that from one of our data inventory specialists.

CO-CHAIR CONNOLLY: I would ask about schools. Would it be a possibility to take milk? I know lots of schools have lots of apples and bananas at the end of the day. My mother-in-law works at a school and brings home bags of apples that the kids don't eat. Could that be a collaboration between your organization and schools in your area to take at least packaged goods and fresh fruits and vegetables?

MS. GONZALEZ: One hundred percent. We are open for collaboration. We know this work can't be done on its own. But that might be a model we can explore and find out what the schools are doing with their excess foods.

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CO-CHAIR CONNOLLY: Thanks, Jessica. Another question?

MR. HANNA: Hi, Jessica. I'm Toby Hanna. Something you said had me scribbling down and thinking. I want to be sure I understood it right or if there is a nuance I am missing.

You mentioned one of your concerns with the 50-percent reduction in food waste by 2030 would be that that could reduce the amount of food coming to you to redistribute. Everything I heard earlier today was, waste reduction doesn't mean you eliminate it; it means you reroute it and get it to other users. Could it be, if things go right, I guess, you get a windfall as opposed to a shortfall?

Or is there something I am missing there? Is it just that we have to watch the issue carefully? Is that your thought?

MS. GONZALEZ: You summarized it exactly. We need to make sure we are

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rediverting it to agencies such as CUMAC that are doing this work on the ground and not just eliminating it so we are addressing two social determinants of health at once.

It would be extremely helpful to look through it with that lens, that this social issue does exist and if there is a way to alleviate it and address reduction of food waste that would be amazing. Sometimes we miss those nuances when looking at these policies.

MR. HANNA: Yes, make sure it goes in the right direction. Thank you.

CO-CHAIR CONNOLLY: Thank you Jessica.

MS. GONZALEZ: You are welcome.

CO-CHAIR CONNOLLY: Last but not least is Matt Wasserman. Matt is an innovation and sustainability executive with 30 years of corporate, non-profit and entrepreneurial experience. He is currently vice president of New Jersey Composting Council and sits on Governor

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Murphy's Food Waste Recovery Market Development Council.

Matt co-founded Sustainable Princeton and co-chaired the steering team for one of New Jersey's first climate action plans. Matt is a certified climate change professional and most recently founded Community Food Cycle LLC, a composting company working to provide mobile food waste solutions for municipalities, corporate campuses and small good waste generators.

Matt is currently working toward his Master's in Public Administration from the Maxwell School at Syracuse.

MR. WASSERMAN: Thank you very much and thank you for all who stuck around. I do appreciate it. I know we have all been last on an agenda before.

Thank you to the Clean Air Council for having me here today, having the New Jersey Composting Council here today.

The NJCC is a 501C(6) non-profit, an industry association. Essentially,

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our members are in the organic waste management recycling business. They might be professionals, might be in the academic world, haulers, composters, municipalities. Basically anybody interested in keeping organics out of the landfill, we want you to be part of our organization.

Our mission: To advance compost manufacturing and utilization of organics /food waste recycling programs to benefit our members, society and the environment through advocacy, education and research.

The next couple of slides I will not belabor. You heard them now ten times. I just want to make sure they all are reinforced. To let you know, I have been part of some of these food waste audits. I have gotten my hands dirty and have spread food waste out over floors this large to figure out what is in it all, and I had numbers pretty close to 22 percent.

Here is a table from the DEP with

regards to where is this food waste coming from. You can see kind of the largest part of the pie there is the residential piece of that, followed by restaurants and caterers, et cetera. We have talked a lot about the 50-percent Reduction by 2030 and have talked about the laws that are now on the books. Unfortunately, that law doesn't address the majority of that pie. I think that is one of the key pieces I want to make sure people take away.

It is good that we passed that law, it is great that large providers of food waste can have a place for food waste to go. But all the small generators, it adds up and it adds up big time.

This is interesting. This is kind of the number of full scale facilities in the U.S. that take food waste. I thought this was interesting because I know here in New Jersey we like to think of ourselves as being very progressive when it comes to the environment and various

other social and environmental issues.

But you notice where New Jersey sits in terms of the total number of facilities. It is that really small bar there in the middle. If you look around it, states that you wouldn't expect to be better than us, like Florida and North and South Carolina and states like that actually have more than we do. It is one of those kind of moments where you're like, oh, man, maybe we are not as good as we think we are. What do we need to do?

You heard about all four of these already today so I will not belabor this either. These are the four. They are for large generators, food waste generators.

This is your slide. It is a phenomenal slide. It speaks volumes about what the problem is, about kind of what the results are from a GHE perspective. And what really kind of speaks to me is what is in the box with

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regard to a 300-percent increase in methane-based emissions over the last 30 years or so.

So, the problem is pretty darn big and the problem is now and the problem is us. I can't point fingers because it is all of us. We are all part of the problem. Fortunately, we can all be part of the solution.

You asked to look at it four different ways. The next part of the presentation will be about how we think, from a council perspective, some of these things can be addressed.

From a technology perspective, you guys have it. You know what they are. They are here. There is really no major new technology that we need to go off and kind of fund. We need to fund what we already know exists, what we know already works. I think that is great news, at least from a speed perspective.

We are, the New Jersey Compost Council, we do love composting. It is in

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our name. We are agnostic, though, to all the other things on the semicircle. Here is a lot of good reasons why composting is awesome: It eliminates toxic emissions, improves soil structure, increases infiltration and permeability within the soils themselves, which prevents runoff.

It improves water holding capacity, reducing water loss and leaching in sandy soils.

It supplies and rehabilitates a variety of micro and macro nutrients to the soil, which is really important to get nutrient dense food, which is really important.

I will given guys ten seconds to look at this. This is some additional great benefits that composting brings to the table.

From a policy perspective, you have heard about some of these today. Again, the good news is that for the most part they exist. You have bills already that

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have been either drafted or already running through the Assembly or the Senate.

You have got the community garden bill, which is something -- from the perspective of a really small, let's make sure this can work and it is not going to hurt anybody, it just feels that is kind of a no brainer. It's the low hanging fruit.

Mr. Sondermeyer earlier talked about tiered permitting. New Jersey Compost Council, along with Rutgers University, the last year or two actually drafted some initial legislation, some wording for this particular piece. That is something we can bring to bear if folks are willing to put that one on the table.

A big piece of that one that we didn't hear much about today is for farms. Farms need the ability to bring in food waste from outside, be able to turn it into compost and be able to share

the same compost with other farms. Today, because there is too many crossing of things, that can't happen. That is something that needs to happen. I know our friends at Northeast Organic Farmers Association are a big proponent of making sure something like that happens.

County planning, which you heard about from Mr. Sondermeyer and others, and extended producer responsibility. It shouldn't only be on the backs of the people who are trying to deal with the food waste in the end who have to shoulder the burden. A lot of this should go on the folks producing things that are causing issues in the first place.

From a best practices education perspective, here are some thoughts. Food waste impacts on climate change. Maybe that should be part of the core training to our elected officials and folks in the DEP. This is fantastic that we are doing this today, but

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onboarding -- if this is such a critical issue and if we really want to make sure something like this gets tackled, maybe something like that should be part of the initial training for anyone in government and our public administration.

Having the DEP feeling like it is an organization that sees itself as a catalyst -- this comes from somewhat personal experience. As was mentioned, I started a small company a few years back, Community Food Cycle, kind of going down the path of the RD & D permit and was told, "Hey, go this way. You are only going to be managing two to three tons a week, it's really fast process."

Eighteen months later I finally got a permit through that process. But all the while, the process was always bogged down. In fact, there was a quote I keep in my head all the time. I don't remember who said it anymore but at one point I was told, "Hey, we are not here to help you. We are just here to make

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sure you fill out the forms right."

I know that was 5 years ago. Things seem to be very different now, which is fantastic. It is a testament just to see this day today. But I think walking into an organization that feels that, hey, we are here to help and we want this to all work would be fantastic.

Simplifying the permitting process. I heard earlier today that it is already happening. Keep moving on that one. There seems to be a lot of overlap between the various SWAC's and the DEP. I fill out a lot of the same forms and answer a lot of the same questions. It slows everything down. If there is something we feel like we are needing to fix immediately, it doesn't help if you feel like you have to do everything two or three times.

Being scientific in your policies, leveraging successes across the composting world. A bad take from 20 years ago isn't necessarily what is

going on today. The technologies are different.

Education; this is kind of the NJCC's sweet spot. We do a lot of educational work, grass roots, community, with businesses, industry, trying to work with legislators and regulators. We heard a lot about education today, which is fantastic. Any way we can help and be part of that or can be leveraged, we'd love to do that.

Finally, the last slide kind of on funding. Let me start by saying I think that most of us in the room are public administrators. We kind of have two jobs. One is the one that is on our business card. You might be working with permits, you might be head of a non-profit. Whatever it is. But the other one, as a public administrator, our role is to maximize social welfare. So what does that mean and how do we do that?

You have heard today from Brian

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Blair about the difficulty in the economics. A big part of that, I believe, is because what you have had up to now is essentially a natural monopoly as relates to where does food waste go. It goes to a landfill. All the economics point to that. If you want to break up a natural monopoly, you have to incentivize and put things in place to allow these other technologies you heard about today and are hearing about now to be born and to be successful. That is really important.

These are some of the things that we would suggest. Most of the things you heard about today were big, large anaerobic digesting projects. But the community composting stuff is big. There are small organizations all around the state trying to make things work. And from an economics perspective, it is really hard and getting money to them is really important.

Continuing with the higher

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education grants. You have heard about some of those today. We are clearly making huge headway from an education perspective and getting the word out.

Next, one of the things that is really important, it is great to have legislation but the legislation needs to really make sure the right organizations like the DEP have money as well to enforce them and help them along and making sure that is all part of it.

The last part I think is a bit redundant. But again, just making money available for all these types of projects not just kind of the large ones.

I think that covers the four areas. With that, I thank you for your time. If you have any questions, I am happy to take them. Knowing I have been in this job three weeks, I will do my best to answer any questions you have. If not, I can always get back to you.

CO-CHAIR CONNOLLY: Thank you so much. Questions from the Council?

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I have a question. We didn't really hear much today -- I am not saying I am promoting this, but mandatory composting for households. New York City, California, Washington State. What does the Composting Council -- how do they feel about that?

MR. WASSERMAN: Excellent question. At 40,000 feet we love the idea of mandatory composting. Food waste has to be able to go somewhere. What you heard today from especially the larger organizations, a lot of the larger facilities, they can't take most of the food waste that comes out of residents. It has too much in it they can't deal with, which leads you down the path of okay, that is great; we have community composters that want to deal with that kind of stuff.

But go back to they are not permitted because the process takes too long, because it costs too much. They don't have the money to pay enough people

to pick up the food waste or bring it to where it would need to go.

We 100 percent would love to see that in the solution set and be part of the ultimate solution. But the money needs to go -- as always the case, it needs to go to be able to support those kind of technologies that can deal with that kind of food waste.

CO-CHAIR CONNOLLY: Thank you so much.

MR. WASSERMAN: Thank you.

CO-CHAIR CONNOLLY: That is all from our speakers today. We have some public commentators, too, some are virtual and some in person. Let's get started on those.

Each of you have three minutes for public comment. Of course, you are also encouraged to submit written document comments. Also the information is on the Clean Air Council's website about how to submit comments in writing as well.

First is Robert Rashkes.

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MR. RASHKES: At prior years' public hearings I have spoken about the increase in recreational wood burning in residential neighborhoods and the adverse environmental and health effects it causes, which is highlighted in this poster. The challenge the State faces is how do we address the increasing carbon emissions from wood smoke from recreational wood burning from fire pits and fireplaces.

I suggest regulating residential users of wood burning fireplaces and fire pits to help measure carbon emissions into the environment. Users could pay a permit fee to receive education on how to use fireplaces and fire pits and agree to be considerate of neighbors who are negatively impacted by the smoke.

I also suggest incentivizing conversions of wood-burning fireplaces and fire pits to natural gas or electric in the form of rebates or Sustainable Jersey points.

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Another concern that I have is the lack of a requirement of tree service companies to recycle the wood they remove from trees. Many tree service companies provide wood to users who wish to burn it, which pollutes our environment.

I appreciate that the New Jersey Attorney General is suing the Environmental Protection Agency along with ten other states over standards for wood-burning stoves. I also appreciate that Governor Murphy vetoed a bill that would have allowed for public burning of Christmas trees by municipalities. I also appreciate that the NJDEP provides information about the negative impacts of wood smoke on its website.

After experiencing the effects of the wild fire smoke emergency our state experienced last year and seeing the increasing carbon emissions of wood smoke from recreational wood burning, I would like the Clean Air Council to consider this topic for next year's public

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meeting.

Thank you.

CO-CHAIR CONNOLLY: Thank you so much, Robert.

Next, Amanda Taylor.

MR. JOHNSAMSON: I will be speaking on behalf of Amanda Taylor.

CO-CHAIR CONNOLLY: This is Peter Johnsamson. Go ahead, Peter.

MR. JOHNSAMSON: I appreciate the opportunity you are providing to us to share about our technology. We are a composting technology company that was created in Sweden. We are able to take organic waste, regardless if it is human, animal, any kind of organic material, sludge -- all of this -- and compost it within 24 hours using our technology.

Currently we are partnered with UTRVG down in Rio Grande Valley in Texas. We have certifications on the compost itself after it is processed. We are able to also build facilities. We have them throughout Europe as well as in

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Asia.

Our footprint to compost is, for a plant, depending on the amount of waste New Jersey is generating per day, we are able to sort and compost that within 24 hours not having any backlog. This sort of gives an overview on this. I will share this presentation upon request or share it with my contact for this meeting.

The way the process works, I wanted to share. The food waste truck would come and deliver. We have a conveyor belt that sorts out the material that is compostable to non-compostable. We squeeze all the materials to create biogas if needed or bio diesel as well. And then the rest of it is composted within our product using four unique ingredients: Air, an agitator, and also microbes and water. All these four things are used to compost the material within 24 hours.

You can see, you can reuse the

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compost to energize the land that is not able to generate any of the organic material that we are needing now. And we have several different units, from a ten ton units for restaurants all the way up to 6-ton units for small facilities, all the way to manufacturing facilities as well, where we can put a factory, a composting factory on a two-acre land, and we are able to do that.

None of the material that we are composting will generate any green gases. We actually reduce methane, CO2 and all of this using our methodology.

This is an example how the process is. We take the traditional compost material. Within four hours you can start to see, with our patented technology of microbes, we are able to reduce it because we are turning the soil over. Then within 8 hours to 24 hours we have a product that you can reuse to fertilize the land.

This is another slide that shows.

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On the far right-hand side you see our composter that is a ten-ton unit. We also have a household unit as well. Some of the speakers were talking about starting the programs at households. Getting our children educated from an early age to understand the impacts on the environment --

MR. MILGROM: Sorry to interrupt you. You are a little over time. You can share your slides with the Council.

MR. JOHNSAMSON: Okay. Thank you.

CO-CHAIR CONNOLLY: Thank you, Peter. If you could please email us those slides, that would be great.

The next public commenter is Marissa Magura. Is she online? No?

Helene Lanctuit?

MS. LANCTUIT: I am Helene Lanctuit, executive of Share My Meals, food recovery organization specializing in rescuing and donating healthy prepared meals. Our work addresses both emissions reduction and food insecurity in New

Jersey.

I am here to shine a light on a significant opportunity for very high quality waste reduction that could be implemented at near zero cost. This, unfortunately, represents about 2.5 percent of all food waste in New Jersey, about 44,700 tons per year. If rescued, donated and served, this could reduce or eliminate food insecurity for as many as 29,000 households.

Every day in New Jersey supermarkets and caterers discard about 120 tons of prepared foods. A large proportion of it is coming from self-service stations like this hot food bar at Wegman's -- ShopRite, where I took the picture, or Whole Foods or from large catered events.

We know corporations have a strong interest in donating the foods and that food recovery organizations like Share My Meals, all table to table, have the capability to safely transport them to

places of need.

The primary reason corporations don't donate the food is that the current guidelines regarding donation of surplus food are ambiguous when it comes to these type of service stations. Understandably, corporations want to protect themselves from liability.

Public health experts tell us that temperature controlled and covered food at self-service stations is safe to donate and yet the current guidelines suggest otherwise. You asked the question this morning about if this could be recovered. So, this is an easy win for New Jersey.

For the corporations, we'd like to see legislative measures to compel this type of food donation, the guidelines updated to remove the unnecessary ambiguity related to self-service stations, information on updated guidelines provided to food service corporations and training for health

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inspectors. On the non-profit side, funding made available to food rescue organizations to help ensure that this surplus food is consumed for those in greatest need.

Thank you very much.

CO-CHAIR CONNOLLY: Christina PioCosta-Lahue?

MS. PIOCOSTA-LAHUE: I am Christina PioCosta-Lahue, president and founder of Vivaria Ecologic, food waste composting company here in New Jersey. I have been working to develop commercial scale composting facilities over the past four years in this state and have faced a handful of challenges. I want to highlight one of those today.

There is a critical regulatory barrier to food waste composting facilities being developed. I recently submitted a petition for rule-making with the assistance of Dennis Toft from CSG Law to the DEP to request to remove the requirement that Class C food waste

recycling facilities be enclosed in a structure.

The DEP just denied this request. New Jersey is the only state in the U.S. that has a requirement that food waste composting happen inside a building. It is not based on the science of composting and it destroys the economics of facilities being set up due to the cost of the building itself and the cost of air handling.

Not only that, it creates a dangerous operational environment. In cool weather there is steam rising off of composting piles which is dangerous for people operating machinery inside a building.

So, the DEP's response to this petition is that they would like to conduct sort of comprehensive holistic review of the composting rules, which has been quite delayed over a couple of decades. By statute, that would take at least two years. And I believe that

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process, while it is acceptable, it shouldn't preclude making an incremental change now to bring New Jersey in sync with the rest of the U.S. and kind of unblock this barrier to composting facilities being set up that can also accept waste under the food waste diversion law passed in 2020.

I will pause there and I will submit some additional comments in writing. Thank you.

CO-CHAIR CONNOLLY: I think that is all of the public commenters for today. I want to say thank you for all our speakers today and to our public commenters.

Thank you to the Council and staff. I know we will be able to come up with some innovative recommendations based on what we heard today. Keep a lookout for our report on our website in the next few months. So, thank you so much and thanks for coming.

(Adjourned 2:43 p.m.)

C E R T I F I C A T E

I, DEBRA STEVENS, a Certified Realtime and Registered Professional Reporter and Notary Public within and for the State of New York, do hereby certify that I reported the proceedings in the within-entitled matter on Tuesday, April 16, 2024, and that this is an accurate transcription of what transpired at that time and place.

Debra Stevens, RPR-CRR

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