California Bioresources Alliance
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Symposium Program

"Building California's Sustainable Bioresource Economy"

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November 1, 2017, 9:15am – 12:00pm: ***From Siting to Permitting to Marketing – What Does It Take to Profitably Construct and Operate A New Organics Facility in California?***

Moderator:

Melissa Fischer	Association of Compost Producers (ACP)

Presenters:

Kevin Barnes	City of Bakersfield
Layne Baroldi	Synagro
Jack Broadbent	California Department of Transportation (Caltrans)
Rob Busby	Central Valley Regional Water Quality Control Board (CVRWQCB)
Dr. David Crohn	University of California (UC) Cooperative Extension's Waste Management Specialist
Bob Engel	Engel & Gray
Lauren Fondahl	US EPA Region 9
Tracy Goss	South Coast Air Quality Management District (SCAQMD) (*Presented by Paul Ryan*)
Tom Helme	California Environmental Justice Coalition
Bryan Hofmann	Filtrexx
Bob Horowitz	California Department of Resources Recycling and Recovery (CalRecycle)
Steve Kanow	Burrtec Waste Industries
Adam Laputz	CVRWQCB
Jenny Lester Moffitt	California Department of Food and Agriculture (CDFA)
David Mallory	California Air Resources Board (CARB or ARB)
Johnny Massa	Comgro Soil Amendments
Robert McClellon	San Joaquin County Environmental Health Department (SJCEHD)
Dan Noble	Association of Compost Producers (ACP)
Jamie Ormond	California Public Utilities Commission (CPUC) (*Presented by Heather Sanders*)
Craig Pedersen	Kings County Board of Supervisors
Matt Rayl	Serrano Creek Soil (*Presented by Jeff Thurber*)
Paul Ryan	Environmental and Management Consultant
Heather Sanders	CPUC
Chris Seney	Denali Water Solutions (*Presented by Jeff Thurber*)
Tom Shearer	Soiland (*Presented by Dr. David Crohn*)
Frances Squire	San Joaquin Valley Resident and Activist
Jeff Thurber	Denali Water Solutions
Dave Warner	San Joaquin Valley Air Pollution Control District (SJVAPCD) (*Presented by Paul Ryan*)
Dr. Ruihong Zhang	UC Davis
Jeff Ziegenbein	Inland Empire Regional Composting Authority (IERCA)

PREFACE

This presentation was conceived of by the California Bioresources Alliance and the Association of Compost Producers with the objective of promoting industry dialogue. The script was drafted based on interviews conducted by Melissa Fischer during April-October, 2017. All presenters vetted their parts. Some speakers who ultimately could not attend the event authorized others to read on their behalf. In this case, the part is attributed to the absent speaker, with the live presenter named in parentheses. The absent speaker remains responsible for the content. While not a "transcript," this script has been edited to reflect modifications made on the fly during the live presentation on November 1, 2017. A video recording of the live presentation, including the Question and Answer session with presentations by Jack Broadbent and Chris Seney, may be viewed at: https://www.youtube.com/watch?v=6OwyiMnSVso

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INTRODUCTION

0 Melissa Fischer (Moderator): Good morning, I'm Melissa Fischer. I'm moderator of this first panel, which is called: *From Siting to Permitting to Marketing - What Does It Take to Profitably Construct and Operate a New Organics Facility in the State of California?*

A cast of 30 people are going to present. I've had the honor of having personal conservations with all of them exploring answers to this question. What is clear is it's not simple. It's not possible to talk about one issue without talking about the whole. A statement someone may make that is true in one context, is not true in another. We've put together a scripted conversation just to walk through and hit the highlights of what the panelists believe are the most pressing issues affecting the development of new solid waste management infrastructure in the state.

It's going to take us about fifty minutes to run through the presentation. If you hear things that you want to respond to or have questions about, please make some notes. We've set this up to have a very lengthy two-hour Q&A period. There's a lot of expertise in this room, both in the panel and in the audience. We encourage a healthy and respectful dialogue this morning.

CONTEXT

1 Jenny Lester Moffitt (California Department of Food and Agriculture, CDFA): The great state of California intends to mitigate climate change while enriching its most vital asset, its agricultural lands,…

2 David Mallory (California Air Resources Board, CARB): … by minimizing methane emissions through the reduction of organic materials that are sent to landfills.

3 Bob Horowitz (California Department of Resources Recycling and Recovery, CalRecycle): Instead, organic materials will be diverted to facilities that create nutrient-rich soil amendments…

4 Jenny Lester Moffitt: …which, when applied to California's farmland will increase soil organic matter, reduce water demand, reduce greenhouse gas emissions, support carbon sequestration, and enhance crop yield.

5 Millennial Jane, aka Frances Squire (Entrepreneur, Project Proponent): What a progressive, enlightened state. California is leading the country. I'm here to make an honest living that's good for the planet and my bank account.

SITING

Millennial Jane: My biggest customers will be farmers. I can transform agricultural waste and food waste into outstanding compost. I'll site in the San Joaquin Valley.

Robert McClellon (San Joaquin County Environmental Health Department): You're going to need a permit. Do you have a site in mind?

Millennial Jane: Yes! The San Joaquin Valley.

Robert McClellon: Is it going to be in San Joaquin County?

Millennial Jane: Sure.

Robert McClellon: You're going to need Land Use approvals. You'll also need to complete an E177 form. So, head on over to Community Development and Planning to start the process to get your CUP (Conditional Use Permit or Land Use Permit). You can find an E177 form at the CalRecycle website.

Millennial Jane: Thank you, you're so helpful. I'll come back to you when I've got all that.

Robert McClellon: You'd better check in with the Air District and the Water Board, too.

David Warner (San Joaquin Valley Air Pollution Control District, SJVAPCD; by Paul Ryan): San Joaquin Valley is one of the moist polluted air basins in the nation. We need less emissions, not more emissions, before we can have healthy air to breathe. We still can and do issue permits to composting facilities, but you will have costly mitigation measures to offset your new emissions.

Johnny Massa (Comgro, Private Composter): Why are we mitigating the mitigators? Composting reduces emissions from landfills by over 85%.

David Warner (by Paul Ryan): Composting may reduce climate change emissions, but can dramatically increase ground level pollution that can cause health problems, both locally and regionally.

Tom Helme (Environmental Justice Advocate): Don't site in the San Joaquin Valley. You'll have to truck all these feedstocks over the hill. We can't absorb more PM 10 emissions from diesel trucks. Los Angeles (LA) should stop dumping its waste in the San Joaquin Valley. Build the facility in LA.

Millennial Jane: Sure, I'll site it in LA. It will be cheaper to truck my finished compost to the valley, than to haul all the feedstocks.

Jeff Ziegenbein (Inland Empire Regional Composting Authority, IERCA): Feedstocks need to be trucked in and compost needs to be shipped further and further from these facilities. In LA, transportation costs more than the product, in many cases. As materials are shipped even further over the next decade, how do we keep customers interested in paying more to cover these transportation costs? Perhaps a subsidy to incentivize compost users that would help with the material acquisition costs, as well as transportation.

Chris Seney (Private Composter; by Jeff Thurber): It's impractical to site in LA. Regulatory costs are prohibitive.

21 Tracy Goss (South Coast Air Quality Management District, SCAQMD; by Paul Ryan): Consider keeping the technology simple. Windrow composting does not require a permit.

22 Johnny Massa: It is better to have 50 small composters than 1 large.

23 Steve Kanow (Burrtec, Private Composter): Are cities better served by small facilities or large regional ones? That's a good question, it depends on the situation, how much feedstock they have. Smaller facilities (< 2500 cubic yards) seem easier to permit.

24 Matt Rayl (Serrano Creek Soil, Private Horse Stable Owner and Composter; by Jeff Thurber): Seems that science is sometimes omitted in the rule making process:
1) Compost / mulch is viewed as a positive BMP for increasing soil moisture levels. Never mind that when spread thin, a certain percentage of nutrients will pass through (leach). Yet if one pushes all the compost into a big pile, and where even Biblical/Houston rains still won't pass though the pile, now we have water quality issues?
2) Federal regulations say horses are twice as bad as cows. Even though horses weigh 25% less, have more primitive digestive systems, and eat less per pound of body weight. Horse manure (which includes very high carbon wood shavings used a bedding) as a feedstock is very benign, compared to other manures. No room in regulations for determining the danger of feedstock NPK levels.
3) The "best" composts should be generated as close to the feed stock generation as possible. Trucking costs ($'s & air quality) should be properly accounted for when analyzing a site.

25 Kevin Barnes (City of Bakersfield, Public Composter and Hauler): Remember, the San Joaquin Valley doesn't want increased truck traffic. Urban and rural organics integration requires looking at the full picture. Agriculture is the only market large enough to provide the outlet, but it does not have a daily demand. You have to store tonnage and wait for the farmer to need it. The San Joaquin Valley and the Imperial Valley have the farms. Los Angeles and Orange County don't have farms. Do you go to chip & grind to avoid the long distance haul? Or truck the feedstock to the valleys and compost there?

26 Steve Kanow: Currently, siting facilities requires education for all regulators. There is a lot going on out there. Having an operating urban facility available to demonstrate the benefit will help over time and help everybody become more familiar with the overall objective.

27 Bob Engel (Engel and Gray, Private Composter): Cities don't want dust, odors, and vectors. It takes a lot of education. An urban setting should be no problem if managed right. But one facility with a bad reputation can make it difficult for everyone. The state has to educate to the point that one bad actor does not upset the cart.

28 Jeff Ziegenbein: Facilities are often located near the source of the feedstocks. In densely populated areas like LA, the feedstock volumes overwhelm finished product market demands. Land use authority will need to ensure mitigation for trash and odors from tricky feedstocks. This will create some siting challenges. The tradeoff is more trucking to get to areas away from urban populations.

29 Chris Seney (by Jeff Thurber): Avoid it all. Stay out of South Coast and San Joaquin Valley Air Districts. The permit cost makes it impossible to make a profit. The private sector cannot survive in this regulatory climate.

30 Paul Ryan (Environmental and Management Consultant): You need to have your act together or you'll lose a lot of time and money in this process. You have to find out if you can even put your project in this jurisdiction. What are the zoning codes? Does your facility fit into the General Plan?

31 County 2 – (SCAQMD and MojaveAD): We welcome biosolids composting facilities. We want to foster commerce and improve soil health. We have a vocal minority that is concerned about diseases transmitted from biosolids to humans. Our problem is one of language. We cannot sell the science of composted biosolids to elected leaders or their constituents when the EPA refuses to acknowledge that composted biosolids are "compost" – not "biosolids."

32 Bob Engel: Compost is not biosolids! Composted biosolids bear no resemblance to the product it was manufactured from. You've got to use language that supports the product. Engineers and scientists have to consider how technical language plays to laypeople.

33 Johnny Massa: Unnecessary regulatory costs are pushing out the small composters. It's far better for the environment to have fifty small rather than one large composting facility.

34 Millennial Jane: Where is the urban market?

35 Layne Baroldi (Synagro, Private Composter)): Sell to farmers. That market is a loss. You make your money on the front end, on tip fees.

36 Craig Pedersen (Kings County Supervisor): We want the organics on the ground. But the Nitrogen Management Plans are limiting what we can apply. The nitrogen in organic soil amendments isn't readily available. It costs too much to spread. I can get higher yield with chemical fertilizers, which cost less and are easier to apply.

37 Bryan Hofmann (Filtrexx): Do chemical fertilizers cost less? Are you considering the true cost?

38 Jenny Lester Moffitt: We need the organics on the ground. It is the legacy of management practices that has reduced soil organic matter to less than half of one percent in much of the San Joaquin Valley. We understand the critical role of the soil microbiome in crop health and yield, and in carbon sequestration.

39 Adam Laputz (Central Valley Regional Water Quality Control Board, CVRWQCB): It's the mismanaged use of fertilizers that has contaminated ground water in some areas of the Central Valley. Many communities in the Central Valley don't have access to safe drinking water because of this. Nitrogen Management Plans are critical to protecting ground water quality.

40 Tom Helme: We want clean air and clean water for rural communities, as well as a non-toxic environment for farm workers. Composting is a non-combustion solution to agricultural waste that generates new jobs. We want the latest technology in local composting for the San Joaquin Valley.

41 Bob Horowitz: To access Greenhouse Gas Reduction funding for sites near disadvantaged communities, the proponent must involve the communities and provide benefits to those communities.

42 Millennial Jane: If I site near these disadvantaged communities, I might have a ready labor pool and I might qualify for state funding. I wonder if the case for lower emissions could be made for a facility in the San Joaquin Valley if the full cycle is considered – amendment hauling and compost delivery haul. It has to be possible to look at the net impact for the state. It can't be chopped up by air district.

43 David Warner (by Paul Ryan): I agree. Transportation emissions can be very important considerations in the CEQA process, but we aren't allowed by the Clean Air Act to consider transportation emissions under the District's permitting process.

44 Lauren Fondahl (US Environmental Protection Agency, USEPA): The cost of compliance with the local Air District can kill a project. How to modify if overall emissions would be reduced? How to show the net reduction to get around Air District requirements? What if the project is reducing mobile source emissions? How to account for more flexibility with the stationary source? There must be a way to cross the line.

45 David Mallory: This is a difficult issue to solve. We continue to work with our air district partners to determine how to recognize all benefits of diverting from landfill to ease permit requirements.

46 Lauren Fondahl: If requirements on stationary emissions for compost operations make composting infeasible in one location, then the alternative is increasing mobile emissions by trucking further distances.

FINANCE

47 Bank: You have no lock on feedstocks and market revenue is unproven…and you'd like a 20-year loan? Which you may only have 14 or 15 productive years to pay off by the time you permit and construct your facility?

48 Millennial Jane: I'm sure the feedstocks will be there. The state has mandated a 50% reduction in organics going to landfills by 2020. The material has to go somewhere, and there's a glut of biomass in the state.

49 Bank: Then municipalities must be looking for contracts with entities such as yours to take their diverted material.

50 Millennial Jane: They already have contracts with franchise haulers. The market is changing. The state knows all the soil amendments need markets. They are in the process of bolstering markets.

51 Bob Horowitz: We don't have teeth in existing legislation that gives us the authority to mandate municipal uses of soil amendments made from diverted organics.

52 Bank: I can't authorize a loan under these circumstances.

53 Kevin Barnes: It's very difficult to make a business case because it's tough to get a lock on a revenue stream. Hauling and recycling contracts get bid every 5 years. So, it's hard to lock over a twenty-year loan period. Feedstock and revenue streams are not stable for the facility's life. How do you set the rates for it?

54 Jeff Ziegenbein: Non-municipal and waste companies have serious issues obtaining financing due to the inconsistent revenue streams. Feedstock contract durations will often be different – often shorter – than loan durations. Municipalities and waste companies are going to be the ones to do the heavy lifting on the new infrastructure, and CalRecycle needs to understand that.

55 Steve Kanow: In a franchise setting where feedstock is collected by the franchise hauler, the rate payer is ultimately responsible for cost increases due to material handling and processing. Rate payers are sensitive and in most cases require a compelling reason to accept increases.

56 Bob Engel: The private sector has a hard time competing with government agencies that control the flow of feedstock, many times, controlling flow to the demise of the ratepayers. Franchise haulers may offer to build anaerobic digestion in exchange for a twenty-year hauling contract extension. Ratepayers will pay a lot more for hauling to someone who lacks the expertise to manage an organics facility. How many franchise haulers are going to recruit the expertise needed to properly plan, build, and operate a composting facility?

57 Tom Shearer (Soiland, Private Composter; by Dr. David Crohn): The Agency won't commit to guarantee feedstock, and I take all the risk.

58 Chris Seney (by Jeff Thurber): Most facilities fail because they're not sited properly. Odor issues create too much tension with local residents. The facility is sited ten miles away from the nearest community. Our intention was to be the most remote compost site in the country.

59 Jeff Thurber (Denali, Private Composter): It shouldn't have to be like that, especially in a state that wants 200 new facilities in less than ten years. It's the urban areas that generate the feedstocks. We need partnerships with the public sector.

60 Bob Horowitz: By 2025, we will see a 75% reduction in organics going to landfills. We estimate the need for 200 new organics management facilities by then.

SITING/LOCAL LAND USE/CEQA

61 Millennial Jane: California is infamous for its environmental regulations, but I don't expect much trouble. After all, compost is all about restoring the environment and California has made Healthy Soils a priority.

62 Jeff Ziegenbein: We really need a streamlined permitting process for organics management facilities.

63 David Warner (by Paul Ryan): Streamlined? Try the governor's office - GoBiz! They can help set up a state-wide streamlined process like was done for dairy digesters.

64 Millennial Jane: GoBiz…has no category for "solid waste" or "compost" or "agriculture." Hmm, here is a "farm supplies wholesaler" category. It says, "If category not found, try, "General Info." Nothing that corresponds to permitting my solid waste management facility. Where do I start?

65 Chris Seney (by Jeff Thurber): People need to understand what are the 11 permits? You have to obtain them in what order? Why does it take seven years to get a water permit? Why an Environmental Impact Report (EIR) v. a Mitigated Negative Declaration (Neg Dec)? Why a supplemental EIR?

66 Layne Baroldi: That's because CEQA is the biggest time killer. We need more state support for local enforcement agencies (LEAs) for expediting permitting.

67 Steve Kanow: Consistency of Agency review and understanding would be helpful; Local Planning Agency, Water, Air, etc.

68 Bob Engel: Cities have the greatest challenge because most don't have a "compost" designation (industrial or agriculture). Most planners will see one solid waste permit in their career. We need education of planning commissions and city councils. NIMBYs (Not In My Back Yard) will come to the fore and stop most permitting. The state could take the lead to show that if done correctly, these facilities are good.

69 Adam Laputz: The project proponent has the obligation to submit a detailed and accurate permit application for Regional Water Board review. This will streamline the process and allow the Regional Board to make efficient determinations regarding water quality.

70 Paul Ryan: People have no idea of the complexity. Responsible agencies – like the water board, air district, CalRecycle, CDFA, and others - may add requirements to a Mitigated Negative Declaration via comment letters to the lead agency. Your land use permit will have various environmental restrictions in it. And the project proponents may not even have a full understanding of how to engage the various agencies.

71 Adam Laputz: Don't finish your design before talking to the Water Board. Get to know the staff at the Water Board. Have a real conversation about the project. Come to us and ask - don't just communicate through the filter of the CEQA process.

72 David Mallory: We have seen situations where the project proponent has already purchased equipment and subsequently tries to obtain a permit to use it. Proponents need to initiate discussion with the regulators before securing equipment. The permitting process is often complicated and time consuming, and requires a lot of back and forth communication with the regulating agency. Taking this approach will avoid the situation where a project proponent has purchased equipment that cannot be permitted.

73 Millennial Jane: CEQA. The California Environmental Quality Act…I should start here. But everyone wants me to talk with them from the beginning. The Water Board, Air District, CalRecycle – they get to take a shot at me twice? In CEQA and in their own permitting process?

74 Jeff Thurber: CEQA is huge wild card. Competitors can game the process to undermine a new facility. It can cost millions of dollars extra.

75 David Warner (by Paul Ryan): CEQA opens up so much opportunity to have roadblocks. Both valid issues of regulatory compliance and environmental impact; as well as invalid issues due to misuse of the process via comment letters and lawsuits for reasons other than environmental impacts. So CEQA is critical to get it right – in the statewide streamlined dairy digester permitting process, a statewide program EIR was prepared, significantly decreasing CEQA issues and risk for individual projects.

76 Paul Ryan: Proponents must consider CEQA findings and mitigation. These requirements are important. They may not have been discussed before in a focused way. Entities are not necessarily working together to make this work. We need to streamline the project approval process in order to build infrastructure and markets.

77 David Warner (by Paul Ryan): California just streamlined the permitting of dairy digesters in the past few years. Whether we make an organized effort to streamline for solid waste facilities or not, the first few project decisions will define the process. For the District, that may be faster than trying to have multi-agency collaboration up front. The organics diversion targets may not allow time for that.

78 Tracy Goss (by Paul Ryan): Yes, streamlining of permitting is needed, but then there is the reality. There are tremendous challenges to building in San Joaquin Valley and South Coast Air Districts due to the air regulations. There's no way around it. The Air Districts can't back track on regulations. The CASA (California Association of Sanitation Agencies) analysis shows there is tremendous excess anaerobic digestion (AD) capacity in SoCal (Southern California) that can make a huge dent in LA organics through wastewater treatment plant biosolids and biogas, alternative fuel vehicles, pipeline injection. These facilities can't take contaminated food waste. Sources must be matched with capacity. Publicly

owned treatment works will suck up all the clean material. We really need to develop the capacity to deal with the dirty stuff. In the interim, where will it go?

79 David Warner (by Paul Ryan): While California has the most stringent air pollution control measures, San Joaquin Valley and South Coast Air Districts still have the worst air in the country. We can't just focus on landfill diversion and greenhouse gas (GHG) reductions and ignore the real health impacts of ground level emissions from business operations, whether it's a refinery or a composting operation. Every aspect of a composting operation – compost production, trucking, compost getting back to the field - all generate emissions. Most health issues are associated with internal combustion engines – trucks, tractors, windrow turners and loaders. In San Joaquin Valley summers - smog (ozone), and winter - PM 2.5; both are driven by NOx from diesel combustion. While diesel engines are getting cleaner, still 40% of the NOx in the San Joaquin Valley is from trucks.

80 Millennial Jane: San Joaquin Valley farmers are trucking and shipping their produce all over the world. Are you saying we can't truck the organics another couple hundred miles to get the nutrients back into the ground?

81 David Warner (by Paul Ryan): The Clean Air Act says mobile sources aren't addressed by the Air Districts, even though they are responsible for the majority of the air quality problems in the Valley. But trucking emissions ARE handled by the lead agency through CEQA. Either impacts aren't significant or they have to be mitigated to the extent feasible. In my experience, this is a HUGE DEAL.

82 Millennial Jane: Who is the lead agency? Is it the County?

83 Tom Shearer: You'll start with land use, getting a conditional use permit, "CUP," from your local jurisdiction, probably the county. These are likely to be people who have never permitted a composting facility before. They may make the process onerous. They may conduct the process ineffectively, reducing the value to ratepayers, such as requiring all RFP (Request for Proposals) questions to be shared in a public forum, inhibiting dialogue and preventing themselves from gaining needed insight about the project.

84 Layne Baroldi: And, CalRecycle wants 100 new facilities by 2020, plus another 100 by 2025. There are 21 million tons of material, including 1 million tons of biosolids that are either from ADC (alternative daily cover at landfills) or disposed of. The state must show up at CEQA hearings and local permit hearings to endorse recycling and the State's objectives.

85 Millennial Jane: If California wants to reduce methane emissions and generate healthy soil, why isn't the state providing some kind of backstop to support local jurisdictions? Could I have a state-sponsored project advocate who helps me navigate the permitting process and educates the local jurisdictions as to the broader purpose and benefits of facilities like mine? They could use cap and trade money to fund advocates.

86 Adam Laputz: You may need to hire a consultant who can navigate permit requirements and help develop proposed technologies on your behalf.

87 Layne Baroldi: If the State is serious about its objectives - success is based exclusively on the ability of local jurisdictions to approve siting. We see too much "NIMTOO" - Not in my term of office. Public outreach is key. The State has a role to play.

88 Craig Pedersen: You mean the state should tell counties to get with the program. The state doesn't know what my county needs. You want to build a facility in my county, you deal with me. You think we don't

want our farms to be productive? If your organics management facility is going to support agriculture, we aren't going to have a problem. But there is a vetting process and solid waste management facilities have to step through it same as anyone else.

89 Adam Laputz: Some of the best locations, when considering feedstock availability and amendment reuse locations, are in non-attainment air districts or adjacent to dairies. These locations may also coincide with high vulnerability groundwater areas.

90 Millennial Jane: So, does California want my facility or not?

91 Adam Laputz: We definitely want your facility and we want to protect the groundwater. A good place to consider is where demand is highest. Agricultural land. Then you have to ask, is there vulnerable groundwater? What is the haul cost? Are there air quality issues? Do you have a plan to contain runoff? Generally, high vulnerability groundwater requires higher level water quality practices and monitoring. It's good to reach out to us during the CEQA process. We find that, a lot of times, project proponents are half-loaded. You need to understand that we need to address potential discharge to surface and ground water. The more information that you can provide and the more accurate it is, the better we can assist and move the permitting process forward. You need to know things like depth to groundwater and site-specific constraints. Is there an impaired stream nearby?

92 Johnny Massa: That says nothing of the cost of water protection practices and monitoring. Permitting fees are squeezing out the small operators. It is better to have 50 small composters (of 50,000-100,000 tons per year of green waste) than a single large facility. Just the Land Use Permit (CUP) in the San Joaquin Valley costs $3M. An air permit costs $1M. Those are actual costs for a contemplated project. The developer decided not to do it.

93 Adam Laputz: Composting sites, if improperly sited, constructed, or operated, can be a point source of groundwater pollution. Practices and monitoring are needed to prevent this, but if groundwater is polluted, the responsible composter must clean it up and ensure that impacted communities have access to safe drinking water. The Regional Water Board's regulatory approach would be similar for any type of facility or operation that may pollute surface or ground waters and impact human health. This regulatory framework is not something the Water Boards have made up in a vacuum – it is demanded by the legislature responding to their constituents' concern regarding past practices that have contaminated ground and surface waters.

94 Tom Shearer: That's a good question, does the state really want these facilities? The regulatory requirements are cumbersome, local jurisdictions permitting these facilities for the first time don't have a clue, and the proponent is vulnerable to environmental lawsuits. The regulations are not structured to encourage investment and local jurisdictions are not operating in a manner to help minimize risk. Permitting costs are too high and the state is not incentivizing with low cost loans. We're 100% out of pocket.

95 Layne Baroldi: You're right. There has to be a better grant funding process or low interest loans. Permitting has to be expedited. The state has to close the gap between its vision and the existing expertise and resources at the local level.

96 Paul Ryan: Millennial Jane, you're composting over 5,000 tons per year of food waste, per South Coast (SCAQMD) Rule 1133.3, you must have an emission reduction method of 80% minimum. When you submit a permit application for an emission control device, to see it in your lifetime, you'll have to pay an expedite fee of $6,000 - to get it in a couple of years. The emission source test will run you $150,000.

97 Tracy Goss (by Paul Ryan): Food waste is going to be a growing market. More needs to be done to be ensure it is handled properly for emissions and odors.

98 Johnny Massa: Food waste and biosolids composting do need odor controls.

99 Tracy Goss (by Paul Ryan): Many sanitation districts want to manage food waste via anaerobic digestion (AD) because food waste is odorous and AD requires little to no cleanup. California has no emission factors for food waste composting. Still must test to determine factors. It's daunting for CalRecycle to develop a statewide program. The air districts attempted to find common ground, but various permitting requirements create a barrier. CARB did adopt the strategy. CalRecycle is to develop rules. However CalRecycle addresses food waste will drive SCAQMD rulemaking for green waste and food waste.

PERMITTING

100 Steve Kanow: A uniform approach and single application would be helpful and expedite the process.

101 David Mallory: The agencies are currently working together to align efforts: CalRecycle on recycling; CARB on climate change and public health; and, Air Districts on public health. The environment plus public health plus economics.

102 Jeff Thurber: We need to educate the regulators. They don't even see it. We need to show what pieces they could drastically speed up in the permitting process and reduce the construction and capital cost.

103 Johnny Massa: Air: CARB is mitigating the mitigators. Over 100 million dead trees in the Sierras and the termites eating the trees give off more methane than cows. Out of concern about VOCs, they want everyone in ASP (aerated static pile composting), ridiculous. One size doesn't fit all. 6-7 compost facilities have closed in the last six years and there have been no new permits.

104 Tracy Goss (by Paul Ryan): South Coast mitigates mitigators because if they don't compost correctly, they'll emit ammonia and cause odors. Our regulations ensure proper management of composting. A cap of finished compost can have virtually zero ammonia emissions.

105 Johnny Massa: A compost cap on green waste windrows increases the chance of pathogen regrowth. Once a windrow starts to cook, you don't want to add a cap every time you turn. You're opening the microcosm to something new and can have re-eruption of pathogens in green waste composting.

106 Tracy Goss (by Paul Ryan): Chip and grind must go to soil or compost because it's emitting – aerated static pile composting may achieve pathogen reduction to kill weeds and seeds, which is needed before distribution for use.

107 David Mallory: CARB sees the localized impacts from composting and transportation emissions. What does industry see?

108 Johnny Massa: Green waste and manure composting do not need emission controls. Use a 14-wk std: 7wks + 45-day final cure @ 45% moisture will prevent pathogen regrowth. Green waste promotes regrowth of pathogens. Everyone is using 7wks only. There could be a tradeoff with air regulations – lesser controls to enhance a 45-day cure time. But, there's no financial incentive.

109 Millennial Jane: Are water regulations quicker and cheaper to deal with?

110 Jeff Ziegenbein: Water permitting may be the trickiest and most time consuming. The water protection intention may possibly also be the least beneficial to the environment. The Compost General Order requires some very expensive mitigation requirements which may further prevent non-municipal operators from being able to fund and develop facilities.

111 Dan Noble (Association of Compost Producers, ACP): So, to expand on that notion, the cost of an impermeable surface to protect groundwater exceeds the cost of air compliance. The water permit is the greater impediment. In fact, using ASP (aerated static pile composting) with a compost cap can meet emissions requirements and save a substantial amount over a windrow turner.

112 Rob Busby (Central Valley Regional Water Quality Control Board, CVRWQCB): The Water Board oversees compliance with the Compost General Order. We need complete Report Of Waste Discharge information to enroll dischargers in the Composting GO (General Order). The dischargers have time to install low permeability working surfaces and implement other best management practices to comply with the General Order.

113 Millennial Jane: I don't want to pollute groundwater, but…is there a cheaper alternative?

114 Johnny Massa: The State Water Resources Control Board claims compost is polluting groundwater. On the agricultural side, we have good information on nitrates not impacting ground water. Dr. Mark del Norte's study on water intrusion and nitrate sources, five years ago.

115 Matt Rayl (by Jeff Thurber): Leachate is a myth. We found that in our operation one inch of rain only permeates twelve inches of compost. If a pile is twelve feet high, it would take the entire year's rainfall in one 24-hour period before there would be even the possibility of leachate. Ironically, covers may not reach the lower perimeter of the pile, which is most vulnerable to precipitation and leachate. Covering piles creates anaerobic conditions, i.e. methane.

116 Steve Kanow: Our facility is on a paved surface with an impermeable cover that serves as an emission control device. Water is recirculated through the system and reused as moisture in the composting process.

117 Chris Seney (by Jeff Thurber): Our facility had to meet Title 27. Retention basins had to be designed for the 1,000-yr event occurring in 24 hours, which is 6.5 inches in one day in a location that sees an average of 4.5 inches of rainfall per year. That's equivalent to a landfill liner.

118 Adam Laputz: Here is a place where we have streamlined the process to obtain a general permit through the Water Board. The Composting General Order is protective, reasonable, and feasible for these operations to be in production, and we support the utilization of composting operations to divert organic waste from landfills.

119 Jeff Thurber: Yes, it's definitely better. But there are still discretionary aspects where the local regulator could make this unnecessarily stringent, adding cost and time to the project.

120 Millennial Jane: I'm confused. Are the air regulations the more livable of the two?

121 Dan Noble: Other parts of the state can go open windrow, not in severe non-attainment. There's much cheaper O&M (operation and maintenance cost) for the competition.

122 Tracy Goss (by Paul Ryan): South Coast (SCAQMD) doesn't require windrow composting to be permitted unless it's aerated.

123 Kevin Barnes: San Joaquin Valley and South Coast Air Districts are not consistent with regard to their VOC rules or their Diesel Fleet Rules.

124 Tracy Goss (by Paul Ryan): All air districts are not created equal. The South Coast (SCAQMD) compost rule differs from San Joaquin Valley (SJVAPCD) because there is more agricultural waste in the San Joaquin Valley, as opposed to municipal feedstocks in South Coast.

125 David Warner (by Paul Ryan): If the composting industry wants uniformity, they will end up with the strictest requirements everywhere.

126 Kevin Barnes: How about just some common sense? There is inconsistent categorization of facility equipment. Mobile equipment that remains at the same site all year – some districts consider stationary. But some districts allow it to skate as portable. The industry needs a reasonable interpretation and a level playing field.

127 Steve Kanow: The Composting General Order is fairly new. The hope is that this creates consistency amongst the Water Boards.

128 Millennial Jane: Will my project be able to absorb the costs of these measures?

129 Kevin Barnes: It's not necessarily about the most stringent requirements everywhere. There is plenty of room to standardize approaches in common sense ways that benefit the industry and the state. There is a need for a simple process to obtain a short-term test permit for diesel equipment, for example. Green waste behaves differently in different locations. I can't assume that I will get the same performance from cutting and screening equipment in Bakersfield with my feedstocks that someone else is getting at another location with different feedstocks. I have to production test new equipment before committing to purchase. But the vendor does not have the exact make and model in stock ahead of time to apply for a test nine months in advance. These are simple things to take care of.

130 Tom Helme: Well, if we want to talk about common sense, in the San Joaquin Valley, a farmer can pay the air district $250 per acre for a permit to burn agricultural waste. But to chip the material, it ends up costing about $1,000 per acre. Is the air board incentivizing burning?

131 David Warner (by Paul Ryan): The District has prohibited open burning in all situations where there is a cost-effective alternative. If they can demonstrate to a third-party hearing board that there is no cost-effective alternative, they can stipulate a violation of the regulation and pay $450 per acre to burn the waste, but only on days when we have great air quality. We have a very sophisticated computer modeling system that allows us to determine how much, and where, ag waste can be burned without causing a problem to air quality. The alternative to open burning (chipping and grinding and finding a place to take the waste) probably does cost about $1,000 to $1,500 per acre. If it was cost effective to chip and grind and take it elsewhere, we would require that to be done.

132 Tom Helme: But even when you're allowing farmers to burn on good air days, you are ensuring that the next day is going to be worse. Environmental justice groups in the San Joaquin Valley are opposed to combustion as a form of organics management. We support non-combustion methods, including composting.

133 David Warner (by Paul Ryan): The air district is opposed to combustion processes, too. Let's all work together to make sure that there are cost effective alternatives to open burning, including subsidizing composting operations that take woody ag waste – currently, farmers can't afford to pay

the tipping costs. There are no cost-effective alternatives and that's the only reason open burning is allowed!

Clean Air Act Limitations

134 Kevin Barnes: A major issue is the fragmented regulation of air emissions. The regional air districts control only stationary sources of air emissions. CARB controls mobile sources of emissions.

135 David Warner (by Paul Ryan): I agree. For instance, while VOCs do contribute to ozone, the San Joaquin Valley would probably get cleaner air faster if it put all its money on NOx, but the Clean Air Act obligates us to control VOCs (volatile organic compounds) without respect to air quality problems in the San Joaquin Valley. It is a valid frustration that a compost facility must buy $1 million in offsets. It's very expensive to control VOCs, but it doesn't do a lot for air quality.

136 Tracy Goss (by Paul Ryan): The real issue is diesel emissions. In South Coast, 80% of smog-forming emissions are from diesel vehicles and overall 88% comes from mobile sources. SCAQMD can't regulate them; we can only incentivize. We estimate we need $1 billion per year for the next 10-15 years to incentivize the upgrading of vehicles to solve our air quality problem. This year, South Coast adopted an air quality management plan. We expect federal approval, which will save us from federal sanctions.

137 Dan Noble: In addition, composting gives off non-reactive VOCs that count as VOCs because the regulatory structure doesn't allow for that distinction.

138 David Warner (by Paul Ryan): From an air chemistry perspective, VOCs from composting and organics handling is less of an issue than NOx emissions from the transportation to and from the site, and from diesel equipment on the site. VOCs from organic waste – we're anxious to accommodate if we can limit and mitigate the NOx emissions. Unfortunately, the clean air act requires us to regulate VOCs and NOx equally.

139 David Mallory: While CARB does not permit stationary facilities, we are involved in high level policy discussions because we have oversight over the permit and enforcement functions of the air districts.

140 David Warner (by Paul Ryan): While NOx is the most important pollutant to the District's efforts to fight air pollution, CARB is caught up in the state effort to reduce greenhouse gasses. A necessary part of our role as a regional air district is to keep CARB focused on our issues affecting health in the San Joaquin Valley. The state just adopted new oil and gas methane control regulations. We had to work the CARB oil and gas regulation team very hard to get their understanding that combustion of methane by oil companies generates NOx and causes air quality issues in the valley. Pollutants that cause health problems at ground level shouldn't be a secondary concern to greenhouse gasses; they should be a primary concern.

141 David Mallory: CARB is and always has been first and foremost a public health agency. We understand the emissions tradeoffs of certain actions, and we are not interested in achieving greenhouse gas reductions at the expense of public health.

FEEDSTOCK CONTAMINATION

142 Jeff Ziegenbein: Facilities will be built to process high-value feedstocks to justify investments. Will the market bear the tip fees needed to process the next phase of organics streams? Feedstocks will need to include food waste and dirty green waste. Manure will also be included someday. These streams have high nitrogen and high contaminants and will require special attention to the technologies and markets.

143 Johnny Massa: Composters taking municipal green waste as a feedstock are inheriting other people's problems. Chlordane is prohibited for farmers, but permitted for residential use.

144 Bob Engel: Anaerobic digestion food waste residual will be nasty stuff. Where will it go? Dirty feedstocks, no sorting, straight to digesters - Will the market take this "organic" stuff for free?

145 Adam Laputz: For some composted and green waste materials, we've heard concerns that plastics are not well enough addressed – when the soil dries the plastics become very noticeable.

146 Kevin Barnes: Yes, and CalRecycle needs to recognize that most food waste is trapped in packaging or it has to be held in plastic bags for collection. Very few people will rinse out icky carts, and that would take too much water anyway.

147 Robert McClellon: Feedstocks should be clean, ideally, to have a cleaner end product. That way the site looks much better. In 2018, you're going to have to meet the 0.5% limit on physical contamination in finished product. You might as well start working with your feedstock suppliers, now.

148 Dan Noble: CalRecycle must attribute the true cost to non-organic materials and methods, such as ascribing the environmental cost to the manufacture and purchase of plastic bags.

149 Kevin Barnes: A lot of composting processes aren't going to decompose the supposedly "compostable" bags – and they cost 6 or 7 times more than plastic bags.

150 Dr. David Crohn (UC Cooperative Extension's Waste Management Specialist): CalRecycle views contamination as a "local" problem. They expect composters to work with feedstock suppliers to address the problem.

151 Dan Noble: But, composters don't want to be the police.

152 Bob Horowitz: So, just reject the load.

153 Bryan Hofmann: But where does the rejected load go?

154 Kevin Barnes: Contamination can vary from load to load. It can vary by neighborhood. Composters need to gear for a wide range in order to attempt the California goals.

155 Dr. David Crohn: Film plastic weighs the least, but it is the biggest issue.

156 Dan Noble: Of course, the Association of Compost Producers' members don't want to litter the state of California. We want to produce quality compost. Is it reasonable for California to push this issue onto the plate of the composters? If they don't want contamination at the downstream end, they may need to consider eliminating it from the upstream end. Where are incentives or mandates for the use of compostable packaging? Where is the research for new technologies to remove contamination from finished soil amendment products?

157 Dr. David Crohn: Everyone knows that recycling is good. But citizens are oblivious to green waste contamination. We need a state media blitz and community education.

MARKETS

158 Dr. Ruihong Zhang (University of California, Davis): In the waste conversion facility, integration of technology and operations is vital. For example, digesters can be very well integrated with composters. The digestate from digesters can serve as a good source of water and nutrients to the composters.

159 Bob Engel: We need to break the hurdle of county ordinances. The California Association of Sanitation Agencies (CASA) and private composters are challenging counties with non-science based ordinances.

160 County 2: Language matters. “Biosolids” v. “Compost.”

161 Robert McClellon: I don’t care what you call it. International markets are a major source of revenue for San Joaquin County. We can’t sell our fruit to countries that reject fertilizing with biosolids.

162 Bryan Hofmann: We need government institutions to promote market niches for slope stability, filter drainage, stream bed restoration, cleaning for recharge, and IGP (Storm Water Industrial General Permit) requirements - screening for storm drains and agriculture.

163 Jenny Lester Moffitt: The CDFA Healthy Soils Program is incentivizing farming practices that use compost to sequester carbon.

164 Paul Ryan: We need to look at the customers and End Users. It falls apart at the customer-End User part of the market. People assume compost goes directly to the field. Not so. Most often it goes to End Users to blend or manufacture a new product.

165 Kevin Barnes: The compost profit margin is too small. Notice the largest operations in California are funded by upfront fees for waste collection.

166 Chris Seney (by Jeff Thurber): Green waste is the real issue. The green waste market limits the tip fee that composters can charge. There’s not enough headroom to charge for the composting. You can't compete with the unregulated chip and grind operations.

167 Kevin Barnes: And, the AB 1826 diversion requirement has the potential to upset the market. Orange County Waste, for example, used 2,000 tons per day of green waste for alternative daily cover (ADC) on landfills. With the AB 1826 phase out of ADC - should they mulch or compost? No single market can take it all. If only 50% went to compost, it would flood the market.

168 Bryan Hofmann: Do we insist on composted mulch?

169 Bob Engel: Yes.

170 Tom Shearer (by Dr. David Crohn): Soiland can spend $100,000 per year on testing for herbicides and pesticides serving the cannabis market. Without it, we could have "killer" compost. The industry must self-regulate.

171 Bryan Hofmann: Regulators are concerned with risk. The industry needs to clearly define the risk, so the regulatory community knows what it is trying to regulate.

172 Chris Seney (by Jeff Thurber): The pace of government adoption will not support achievement of the 2025 objective. It took Caltrans 8-10 years to start utilizing compost.

173 Matt Rayl (by Jeff Thurber): Every horse stable should have onsite composting. Yet the legal requirements are quite beyond the average stable owner. The biggest impediment to sales is the lack of understanding of simple soil science. Sorry to say, often this extends all the way to landscape architects, government planning staff, and elected officials. Without demand, all is for naught.

174 Rob Busby: When property owners import compostable material from green waste transfer stations, they must comply with the new CalRecycle regulatory requirements. The Local Enforcement Agency (LEA) takes the lead in regulatory oversight of land application of compostable green waste. The county confers on a case by case basis with CDFA and the Regional Water Board. Under these requirements the LEA will be conducting pathogen and metals testing.

175 Dan Noble: But, it is only a level playing field in these markets if the regulations are enforced.

176 Tom Helme: And, where is the enforcement in poor communities and rural areas?

177 Bob Engel: Chip and grind operations are easy to setup and operate. They come and go. They impair markets by not having permitted restrictions. Large municipal operations sometimes undercut the market. With biosolids as a feedstock, economics is less of a factor. The private sector can end up competing with the municipal facilities that do not have some of the same economic incentives.

178 Steve Kanow: It's important to understand the products, regulatory paths and markets; mulch, compost, biosolids compost, and certified organic compost.

179 David Mallory: CDFA is incentivizing compost uses. CARB's short-lived climate pollutants strategy has identified composting as part of the solution to the climate problem. Our emission reduction calculations assume that half of the organics will go to composting. The *Climate Change Scoping Plan* asks, "How to get from the ideal to the policy that makes it happen?"

180 Steve Kanow: Caltrans (California Department of Transportation) uses a lot of material. There's a lot of mom and pops. Horticulture. It's not one key group. They will test and reject loads. They're picky. They all want OMRI-certification.

181 Jack Broadbent (Caltrans): We use a lot of material. We have rejected loads. For Caltrans, the compost particle size and trash content are key.

182 Adam Laputz: Nitrogen application on land must take into account residual nitrogen. We need Nitrogen Management Plans for mass balance and to control nutrients. Each amendment affects soil and water differently. The use of certified crop advisors is important. We need more research on nitrogen management for organic soil amendments.

183 Dan Noble: Indeed, but also, cities should be strongly encouraged, if not actually pushed, to recycle their own compost by land applying it in municipal lands.

184 Kevin Barnes: Yes, but where does that money come from? Many small jurisdictions have no budget for hauling or spreading the compost. Spreading compost in parks would take away funds from police and fire, for example.

185 Bob Engel: Manufacturers have to keep the compost cost as low as possible to move it. There are permit requirements saying that you can't stockpile for long periods. Agricultural users need a lot at a certain time of the year, so manufacturers need to have space to store it. Then it's all gone at planting season.

186 Layne Baroldi: Compliance with Senate Bill 1383 is a bigger issue for the Bay Area. They can't land apply in certain areas in the wet season; they don't have non-landfill capacity.

Grid Interconnection

187 David Warner (by Paul Ryan): Anaerobic digestion creates a waste-to-methane stream. From the air district's perspective, it's okay to vent methane; it doesn't cause a public health concern. CARB prohibits venting methane because of its short-lived climate pollutants greenhouse gas strategy. It is possible to use methane as a vehicle fuel or put it into the pipeline.

188 David Mallory: ARB is promoting that biogas/biofuel be put into the pipe to displace fossil gas for haul trucks. Flaring methane has an adverse health impact.

189 Jamie Ormond (California Public Utilities Commission, CPUC; by Heather Sanders): It's very costly at this point to interconnect a biogas facility that is not near a robust demand. Extending gas mains to remote areas has prohibitively high permitting and construction costs. Rules are also nebulous at this time.

190 David Mallory: What are the prospects for sending power into the grid?

191 Heather Sanders (California Public Utilities Commission): Well it really depends a lot on the facility location. To feed power into the electric system can be very expensive, as well. The existing distribution grid was not designed to have two-way power flow. We need to make sure the system has the capacity to take this extra power. We may have to upgrade existing lines and stations. We may have to add communication for the data. We may have to have the California Independent System Operator involved. Again, this can be very costly and time consuming.

192 David Mallory: There is a very robust discussion at the California Public Utilities Commission, the Energy Commission, and CARB. This is where the public sector can get involved.

CLOSING

193 Millennial Jane: State agencies and local entities claim they want to see organics on the ground. But the permitting processes and mitigation measures are prohibitive. The private sector questions whether there are viable markets to pay good prices for all the compost that would be generated. Caltrans stands as a strong market, but finds it cannot rely upon consistent compost quality from job to job. There is too much contamination and no one has a solution for it. Is it the composters' fault if California refuses to control its addiction to sheet plastic and glass on the upstream end? Is California leading the country? Can I make an honest living in organics management that's good for the planet and my bank account?

194 Melissa Fischer: How are we going to help Millennial Jane help the great state of California?