

May 30, 2012

Digesting Urban Organic Residuals

A Forum on Technology, Economics and Permitting

Organized by:



CALIFORNIA
BIOMASS COLLABORATIVE

Byron Sher
Auditorium

2nd Floor, CalEPA Building

1001 I Street
Sacramento, CA

Forum Agenda

Wednesday, May 30, 2012 - Sacramento, CA

8:15 Registration Open (Coffee Available)

8:50 Opening Remarks **Caroll Mortensen** *CalRecycle*

9:00 Forum Overview **Jacques Franco** *CalRecycle*

9:15 Update: Compostable Materials Regulation Review **Mark de Bie** *CalRecycle*

9:25 Anaerobic Digestion Case Studies Panel A: Planning and Permitting - Moderator: Howard Levenson

- Permitting a Dry Fermentation Facility in San Jose **Emily Hanson** *Zero Waste Energy Development Co*
- Multi-Jurisdiction Planning **Mark Schleich** *Santa Barbara County*
John Dewey *Mustang Ventures*
- Public Private Partnership and Permitting **Paul Rellis** *CR&R Perris*

10:25 Coffee Break and Poster Session

10:40 Anaerobic Digestion Case Studies Panel B: Construction and Operation - Moderator: Howard Levenson

- Feedstock Pre-Handling and Pre-Processing for Anaerobic Digestion at the East Bay Municipal Utility District's Wastewater Treatment Plant **Donald Gray** *East Bay MUD*
- Toronto's Green Bin Program and AD Facilities: Project Design, Construction, and Operation **Jeorg Blischke** *AECOM*
- Inland Empire AD Project **George Eowan** *Environ Strategies Consultants, Inc.*

11:40 Questions and Discussion for Panels A and B **All Panelists**

12:40 Complimentary Lunch and Poster Session

1:50 Project Economics and Financing - Moderator: Michele Young

- Alternative Project Financing Methods **Lori Raineri** *Government Financial Strategies*
- Anaerobic Digestion: Key Economics Issues **Tim Raibley** *HDR*

3:00 Coffee Break and Poster Session

3:30 Product and By-Product Utilization - Moderator: Rob Williams

- Biogas Use Alternatives: Economic and Technical Considerations **Tom Mossinger** *Carollo Engineers*
- Digestate Composting, Nutrient Utilization and Wastewater Management **Josh Rapport** *Clean World Partners*

4:30 Wrap Up and Feedback

Speaker Biographies

Caroll Mortensen - Director, CalRecycle - Caroll Mortensen was appointed CalRecycle director by Edmund G. Brown in October 2011. As Director, Ms. Mortensen leads efforts on waste reduction and recycling as well as oversight of waste disposal in order to protect public health and the environment. Ms. Mortensen has an extensive background in the development of environmental policy and legislation. She most recently served as consultant for the State Senate Committee on Environmental Quality where she analyzed legislation and provided policy guidance related to solid and hazardous waste, and air and water quality. As chief consultant for the State Assembly Committee on Environmental Safety and Toxic Materials from 2005-2007, Ms. Mortensen worked on issues related to hazardous waste, green chemistry, pesticides, brownfields, and other related policy areas.

Mark de Bie – Deputy Director, CalRecycle - Mark de Bie is CalRecycle's deputy director for waste permitting, compliance, and mitigation. He previously held the position of chief for the Permitting and Assistance Branch for four years. Mr. de Bie first joined the California Integrated Waste Management Board in 1990 after working for Stanislaus County Environmental Health. During his time with the board, now CalRecycle, he has worked as a facility inspector, and as a supervisor for inspections, CEQA, and permitting. He helped develop and was the first supervisor of the Solid Waste Local Enforcement Agency training program. Prior to his service at the board, Mr. de Bie worked as a high school science teacher in California, the U.S. Virgin Islands, and Sierra Leone, West Africa. Mr. de Bie has a Bachelor of Arts degree in biological sciences from Humboldt State University and a Master of Science degree in marine science from California State University, Stanislaus, Moss Landing Marine Laboratories.

Emily Hanson - Community Relations Manager, Zero Waste Energy – For GreenWaste, Ms. Hanson is responsible for community and governmental relations and the development and implementation of public education programs focused on recycling and waste reduction. Notably, she has led GreenWaste in the development of public, private, and nonprofit sector partnerships to foster achievements in waste diversion and instituting behavioral changes to move communities toward zero waste. In addition, Ms. Hanson is recognized for her leadership as project manager for GreenWaste's sister company, Zero Waste Energy Development Company, that will complete the first dry-fermentation anaerobic digestion facility in the United States in 2013. Prior to coming to GreenWaste, Ms. Hanson worked as the executive director of two non-profit organizations in the fields of agricultural resource conservation and affordable housing. Ms. Hanson received a B.A. in Politics and a B.A. in Environmental Studies from the University of California at Santa Cruz.

Mark Schleich - Deputy Director, Santa Barbara County Public Works - Mark Schleich is the deputy director of the Resource Recovery and Waste Management Division within the Santa Barbara County Public Works Department. The Resource Recovery and Waste Management Division is responsible for the cost-effective management of solid waste and utilities in the County. Mr. Schleich has been a strong advocate of the division's mission to protect the public health and environment of the community by efficiently managing waste products and utilities with a focus on resource conservation. The division's comprehensive program for the management of solid waste includes the collection, recycling, and disposal of solid waste, and also the abatement of illegal dumping of waste. Mr. Schleich's division is staffed with approximately 110 full-time employees. Facilities include three recycling and transfer stations and one landfill.

John Dewey – CEO, Founder, Mustang Power - Mustang was organized in 2007 responding to the landfill capacity crisis in California and the US, and is developing a number of resource recovery and waste conversion projects throughout the US and Latin America. Mustang Power's proposed resource recovery projects use technologies in both mixed MSW materials recovery and anaerobic digestion. Additionally, when project circumstances support conversion technology, Mustang also has licensed a commercially proven European thermal process technology (gasification) that effectively diverts 95+% of the MSW residual following MRF and AD while producing clean power. Mustang Power was recently selected by Santa Barbara County (CA) as the Contractor/Developer of a Resource Recovery Project to process ~200,000 tons of mixed MSW per year at their Tajiguas Landfill. Prior to founding Mustang, Dewey was a principal in a real estate investment firm specializing in complex project entitlements, finance and development, with a recent emphasis on environmentally impacted properties, including ownership of 3 former landfills.

Paul Relis, Senior VP, CR&R Incorporated - After graduating from UCSB in 1970, Paul co-founded the Community Environmental Council Inc.(CEC) which pioneered curbside, buyback, composting and hazardous waste programs in Santa Barbara County and published many papers including the influential 1986 "Beyond the Crisis, Integrated Waste Management". The CEC authored one of the first studies in the U.S. on how a city (Berkeley) could achieve a 50% recycling rate. From 1991 - 1998 Paul served as the environmental member of the California Integrated Waste Management Board, where he facilitated the development of California's compost industry, leading the CIWMB's compost regulations and market development for organics and other commodities. In 1998, Paul became Senior V.P. of CR&R Incorporated, where he has led efforts to identify and develop alternative technologies such as AD. He has investigated all aspects of AD development, system economics, technology and the conversion of biogas to renewable natural gas (RNG). He has spoken at numerous, most recently the World Bioenergy Congress held in Xi'an China in late April. Since 1996 Paul has held the position of lecturer in the Environmental Studies Department at UC Santa Barbara.

Donald Gray – East Bay Municipal Utility District - Donald Gray has worked in the wastewater treatment industry, in both the public and private sectors, for over 30 years; currently for the East Bay Municipal Utility District. He has a Ph.D. in Civil/Environmental Engineering from U.C. Berkeley, and an MBA in finance from U.C. Davis. He is a registered professional civil engineer in California, a board certified environmental engineer with the American Academy of Environmental Engineers, and holds the highest level wastewater treatment plant operator's certification in California. He has worked at bringing post-consumer food wastes into wastewater treatment plants for renewable energy generation for 10 years, holds two related patents, and has won numerous awards for his efforts.

Joerg Blischke AECOM - Mr. Joerg Blischke has been working for over 18 years in various environmental disciplines, including waste treatment processes and resource management, air quality compliance services, and water and groundwater treatment systems. He has a background in Process Engineering and was involved in the design and construction of a municipal anaerobic digestion and composting facility in Europe processing 50,000 tonnes per year of source separated organics (SSO). Joerg is the lead project engineer on the Toronto Disco Road SSO Project.

George Eowan – Director, Environ Strategies Consultants, Inc – Dr. Eowan has worked in a variety of capacities related to waste management policy and program implementation. Currently, he is director of environmental services and renewable energy with Environ Strategies Consultants where he assists in the development of new technologies to create energy and other products from waste. His interest in advancing approaches to environmental and energy innovation began with his work at the Gas Research Institute where he was manager of international research and development coordination. There he coordinated technical engineering research conducted by GRI with European and Asian gas research institutions. In 1981, Dr. Eowan took a position as senior consultant in the California Senate Finance Committee. After his time in the legislature, he was appointed chief executive officer of the California Waste Management Board, a position he held from 1985-1990 during the development of AB 939. For the last 20 years Dr. Eowan has worked in a consulting capacity with public and private organizations helping to implement AB 939. He holds a Ph.D. in Public Policy and Management from the University of Southern California.

Tim Raibley - HDR Engineering - Mr. Raibley is a civil engineer with 30 years of experience managing solid waste and related diversion based activities. He has experience with a wide variety of facilities including single stream recycling, organic processing/composting, anaerobic digestion, solid waste transfer, and mixed waste materials recovery facilities. His work spans a wide range of topics from conceptual planning, fatal flaw analysis, peer review, preparation of designs and specifications, and overall strategic oversight. He has provided solid waste management services in the USA, Mexico, Jamaica, South America, Brunei, Morocco, Guyana, Bulgaria, Vietnam and Guam. He leads the Organics Management Group (OMG!) for HDR Engineering, a nationwide Architectural/Engineering consulting firm.

(cont...)

Speaker Biographies (cont.)

Lori Raineri - *President, Government Financial Strategies* - Lori Raineri is a certified independent public finance advisor and a certified fraud examiner. She has served on the Board of the National Association of Independent Public Finance Advisors, and has developed long-range capital financing plans for hundreds of public agencies. During her career, Lori has been personally involved in the planning and structuring of well over seven billion dollars of financing. At the age of 26, Lori founded Government Financial Strategies, and is the author of more than two-dozen articles and publications. Lori received her B.A. in Philosophy from the University of California, Berkeley, and has been an avid consumer of continuing education, taking courses from UCLA Extension, UC Davis Extension, and many professional organizations for government officials. Lori demonstrated her interest in government early in life, serving as the student school board member for the Santa Clara Unified School District, and was thrilled to be inducted into the Santa Clara Unified School District Hall of Fame in 2011.

Tom Mossinger - *Associate VP, Carollo Engineers* - Tom has extensive experience in the design of digester gas utilization, cogeneration, standby power and plant heating systems. Tom has designed many digester gas systems including over 25 MW of digester gas fueled cogeneration equipment. Tom's digester gas experience includes all aspects of digester gas handling from the digesters including digester gas fueled boilers and cogeneration equipment as well as both standard and low emission ground flares, gas compression systems, gas drying systems and gas conditioning system for removal of H2S and Siloxanes as well as standard impurity and moisture removal. (cont...)

(...cont) Tom has experience designing engine generator, gas turbine, microturbine and fuel cell cogeneration systems. Examples of his cogeneration experience include serving as project engineer for the design of two fuel cell cogeneration systems for Eastern Municipal Water District. He also served as Carollo's project engineer/mechanical engineer for the recently completed 4.5-MW gas turbine cogeneration plant for East Bay Municipal Water District's Main Treatment Plant.

Josh Rapport - *Director of Research and Development, Clean World Partners*

With a PhD in Bio-environmental Engineering and Microbiology from the University of California, Davis, an MS in International Agricultural Development from UC Davis, and a BS in Biology from Stanford University, Josh consulted with industry and government stakeholders on organics recycling and anaerobic digestion projects prior to joining CWP. His research interests include bioenergy and biofuel production from organic wastes, engineering systems modeling, and sustainability in renewable energy. During his tenure at UC Davis he managed the Bioenvironmental Engineering Lab and the UC Davis Biogas Energy Project, received the Herbet Kraft fellowship and attended the Green Technology Entrepreneurship Academy. He has presented the results of his research at the International Meeting of the ASABE, the US Composting Council, BioCycle, and the National Association of Waste Managers. Prior to pursuing his academic career he worked as a Peace Corps volunteer in the South Pacific.

Poster Session Participants

Harvest Power
Waste Management
Marin Sanitary District

Humboldt Waste Management Authority
Zero Waste Energy
Zero Waste Energy Development

U.S. EPA Pacific Southwest Region
UTS Bioenergy
ESA; Renewable Resources

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