

Bay Area Regional Biosolids to Energy Partnership

Focused on Sustainable Long-Term Benefits
for Society and the Environment



*Caroline Quinn, Director of Engineering
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The country that harnesses the power of clean,
renewable energy will lead the 21st century.

America can be the 21st century clean energy leader by harnessing the power of alternative and renewable energy, ending our addiction to foreign oil, addressing the global climate crisis, and creating millions of new jobs that can't be shipped overseas.



President Barack Obama

Biosolids – How Much?

Biosolids are the nutrient rich natural by-product of wastewater treatment. Produced by removing the organics from municipal sewage - the majority of which comes from homes.

- 7.2 million metric tons of “dry solids” produced in the USA annually
 - (156,000 dry-tons generated in San Francisco Bay Area)
- Nearly 80% Northern California biosolids reused:
 - Daily landfill cover
 - Soil amendment on agricultural fields

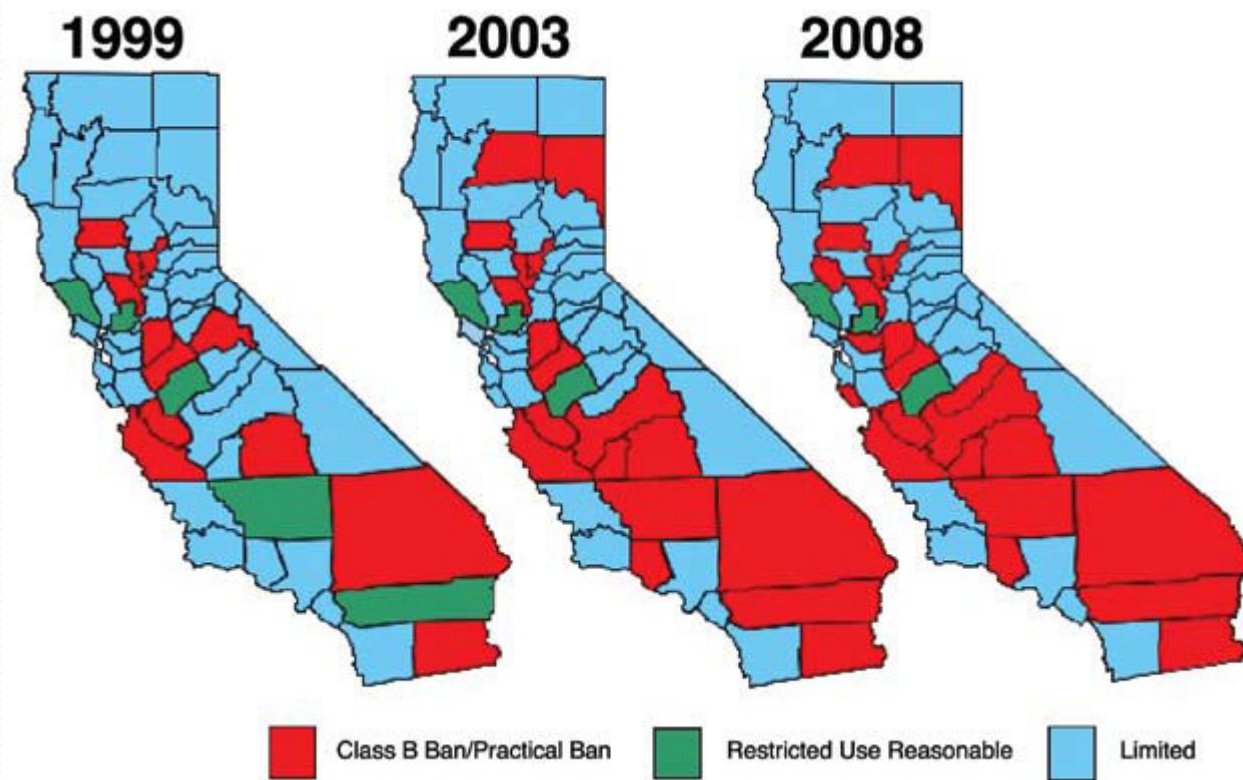


Challenges to Industry:

- **Current biosolids management not sustainable:**
 - 20% projected population increase by 2030
 - Limited landfill capacity
 - Longer hauling distances
 - Increasing costs (current range \$45-\$90 per wet ton)
- **State and Federal Regulations:**
 - Increasing restrictions on current practices – land application and ADC
- **Local Restrictions:**
 - Solano County Ordinance
 - San Joaquin AQMD Rule 4565 (Biosolids eliminated as ADC; incorporation within 3 hours – currently 24 hours)
 - Kern County initiative



County Land Use Restrictions Impacting Biosolids Land Application



[Carollo Engineers, March 2007]



Bay Area Agencies Come Together

Bay Area Clean Water Agencies - BACWA

- Regional Project Feasibility explored by BACWA Biosolids Committee
 - Preliminary marketing study
 - Technical assessment
 - Permitting assessment
 - Governance Options
- Coalition Forms to Pursue Regional Project
 - Preliminary Planning Studies

State and Federal Initiatives - Opportunities

- Climate Change / Greenhouse Gas
 - AB32
 - Federal Initiatives
 - Potential GHG Credits
- Energy
 - Fossil Fuels - Reduced Reliance
 - Renewable Energy Sources – Credits
 - Potential for state/federal grants



The energy potential contained in wastewater and biosolids exceeds by at least five times the energy used to treat it.

Water Environment Research Foundation (April, 2009)

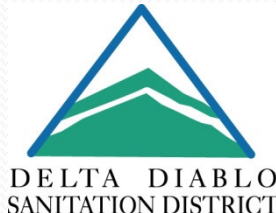


BA B2E Coalition

- 16 San Francisco Bay Area agencies
- Over 2 million residents
- Seeking local, sustainable solution to biosolids management
- Maximize state and federal support
- Unprecedented collaborative approach



Coalition Partners



Project Goal

Explore opportunities to create a project maximizing sustainable use of Bay Area biosolids as a resource of value for society and the environment.

- Maximize renewable energy resource potential
- Minimize GHG Footprint
- Maximize potential for federal and state financial assistance



Project Focus:

Utilize state of the art technology

Air Quality Controls - Meet or exceed stringent BAAQMD standards

Create “green” jobs

Net energy producer

- Considering use of drier fuels currently going to landfills (Lawn clippings , Leaves, Wood waste ... but no municipal solid waste)
- Potential co-location with industry with waste heat



Process Thermodynamics

Parameter	Value
Energy to evaporate water	1,800 BTU/lb water
Primary Sludge Fuel Value	7,400 BTU/lb dry solids
Waste Activated Sludge Fuel Value	6,500 BTU/lb dry solids
Combined Primary and Waste Activated Sludge Fuel Value	7,000 BTU/lb dry solids

Funding & Financing Mechanisms - Existing and Potential

- Project Delivery Method and Partnerships will influence
- Public-Private Partnership
- State and Federal Grants Potential
- Renewable Energy Credit Potential



Community Engagement Program

- Successful outreach campaign = successful project
- Educate, engage and secure support from all stakeholder groups
- Targeted strategies across all stages of project
- Creating trust and building credibility
- BAB2E Communications Sub-Committee



The Regional Approach

- Joint Exercise of Powers Agreement
- Cost Sharing for Consultant Services
 - Lobbyists
 - Engineering and Environmental Services
 - Other Supporting Services
- Decision-Making: Steering Committee
- Lead Agency - Delta Diablo Sanitation District
- Monthly Meetings



“On The Table...”

- State of the Art Technology and Reliability
- Air Quality
- Greenhouse Gases
- EPA definition of Biosolids
- Community Benefits
- Public Opinion / Education
- State and Federal Partnerships
- Transportation



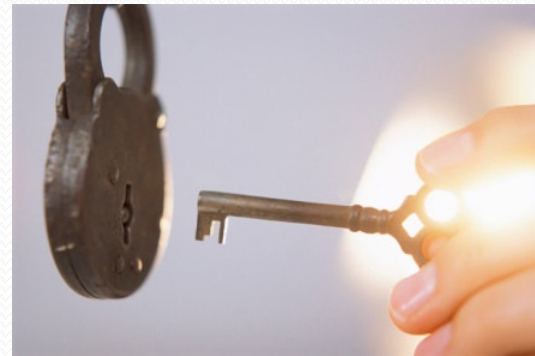
Status



- Advocacy Efforts Underway
Through federal and state lobbyists
- Communications Committee Formed
Sub-Committee – reports to Steering Committee
- Request for Qualifications
Using to evaluate potential technologies
Results in Late March

Summary

- Leading Edge Project – “first of its kind!”
- State and Federal Initiatives
- Proactive Approach
- Regional Cooperation
- Environmental Benefits
- Community Benefits
- Energy Benefits
- Public Engagement
- Sustainable Management and Cost Control





Questions ??

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