Sixteen Agencies Team for Regional Biosolids Solution

BACWA Annual Meeting

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Biosolids – How Much?

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

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Challenges to Industry:

- Current biosolids management in the Bay Area may not be 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

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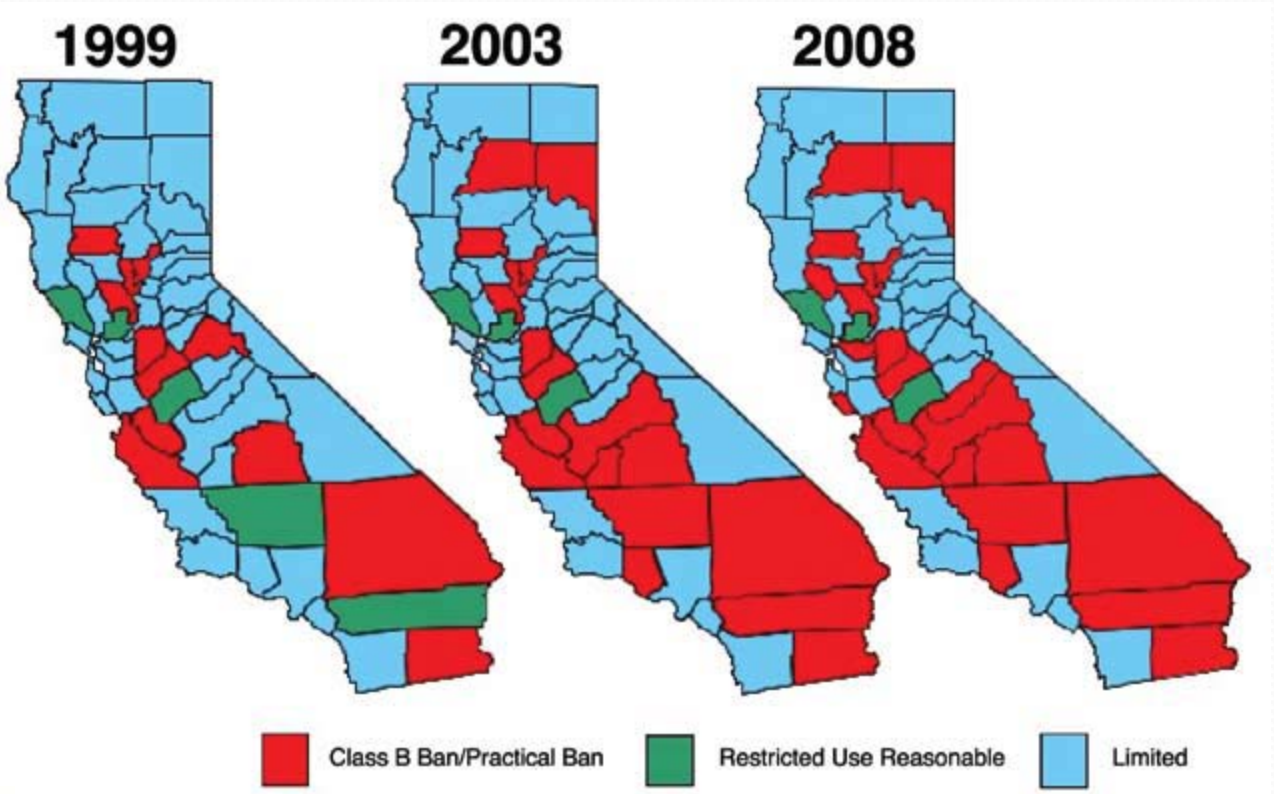
County Land Use Restrictions Impacting Biosolids Land Application



[Carollo Engineers, March 2007]

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BACWA Agencies Come Together

Feasibility of a Regional Project (BACWA Biosolids Committee)

- Preliminary Marketing Study
- Technical Assessment
- Permitting Assessment
- Governance Options

Coalition Formed to Pursue Regional Project

- Preliminary Planning Studies

State and Federal Initiatives - Opportunities

- Climate Change / Greenhouse Gas
  - Carbon Footprint – AB32
  - GHG Reduction – potential future 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)

BAB2E Coalition

- 16 San Francisco Bay Area agencies
- Over 2 million residents
- Seeking local solution
- State and federal partnership
- Honor environmental and community needs
- Collaborative approach

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Bay Area Biosolids to Energy Project

- Diversify options for managing biosolids
- Maximize the sustainable resource development potential of Bay Area biosolids
- Minimize greenhouse gas (GHG) footprint
- Innovation - Net Energy

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Website: www.bayareabiosolids.org

The Regional Approach – Benefits

- Shared Resources
- Cost Sharing for Consultant Services
  - *Lobbyists*
  - *Engineering and Environmental Services*
  - *Other Supporting Services*
- Increased Ability to Influence

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The Regional Approach
How it Works

- Joint Exercise of Powers Agreement
- Decision-Making: Steering Committee
- Issue-specific Subcommittees
- Lead Agency - Delta Diablo Sanitation District
- Monthly Meetings

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“On The Table…”

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

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Project Development Activities

- **Selection Process**
  Completed Request for Qualifications; RFP planned late 2012
- **Demonstration Project 2011-2012**
  PIER Funding 2011
  Planning/Execution 2012
- **Advocacy Efforts Ongoing**
  Through federal and state lobbyists
- **Legal Structure to contracting for Regional Facility**
  2012 update for increased flexibility to contract for regional facility and to add agencies

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Selection Process

Development Team & Technology

- Request for Qualifications
- Submittals from 16 teams from around the world
- Wide Range of Technologies were Proposed
- Three Teams Short-listed
  - *Range of technologies & options*
  - *Innovative approaches*

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Short-List after Interviews

Estimated Energy Production from Short Listed Technologies		
Biosolids Production	Dry tons/day	60
Energy In to BAB2E	Btu/day	636,000,000
Net Energy Out		
Intellergy	Btu/day	78,109,000
Synagro	Btu/day	28,247,000
MaxWest	Btu/day	0 *
* Without wood waste supplement – not recommended (recycles heat to dry solids)		

Selection Process
Short-Listed Teams & Technologies

- **Synagro** – *Dryer using waste heat from generators run with landfill gas, dried product to biomass generating plant*
- **MaxWest** - *Dryer and Gasifier – Excess heat from other fuel sources*
- **Intellergy** – *Steam/CO_2 reforming process to produce electricity, utilizing fuel cells, and hydrogen gas*

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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
Digested sludge fuel value	5,400 BTU/lb dry solids

Demonstration Project

Steam/CO2 Reforming Technology

- Likes higher moisture content - less energy input to dry
- No combustion
- Reduced emissions issues
- Potential to deploy on smaller-scale (sub-regional)

However… yet to be deployed on a commercial scale with biosolids

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Demonstration Project

Steam/CO2 Reforming Technology

- Site: West County Wastewater District
- 7 DTPD, skid-mounted, (approx 50 x 70 ft area)
- Biosolids supply from Coalition agencies
- 4-6 months operation, 12-15 months with preliminary work, testing, reporting
- WERF Peer Review Panel – independent oversight
- California Energy Commission funding

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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

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The media reports…

- *"The project is regarded as the biggest of its kind in the US."*

FT.com FINANCIAL TIMES Mergermarket

- *"… could help create an endless supply of green renewable energy."*

CONTRA COSTA TIMES

- *"With the right technology, more of it (methane) could be reclaimed. There could be enough to convert the methane to more electricity, perhaps even enough for an agency to sell it to nearby customers and create fuel for trucks."*

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Advocacy and Funding

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

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Summary

- Leading Edge Project - Proactive Approach
- Regional Cooperation
- State and Federal Initiatives
- Environmental Benefits
- Community Benefits
- Energy Benefits
- Public Engagement
- End Goal - Sustainable Management & Cost Control

Questions ??

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