EAST BAY MUNICIPAL UTILITY DISTRICT

Legal Considerations for EBMUD's Innovative "Green Factory" Model

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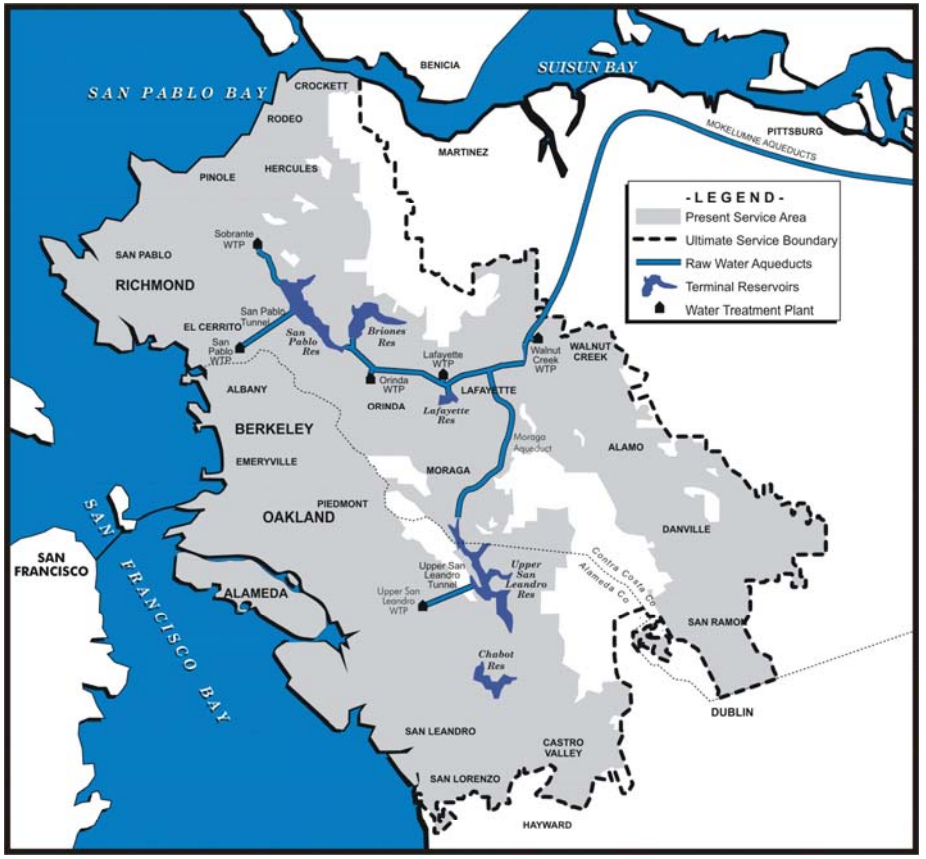
Overview

- Background
- EBMUD's "Green Factory" Model
- Key Challenges
  - Legal
  - Contractual
  - Regulatory
  - Permitting
  - Risk
  - Labor
  - Financial
- Lessons Learned

East Bay Municipal Utility District

- Regional water and wastewater public agency serving the east San Francisco Bay area
- Drinking water system serves
  1.3 million people
- Wastewater system serves 650,000 people (88-sq. miles)



East Bay Municipal Utility District
Main Wastewater Treatment Plant

Unique Conditions

- Excess solids digestion capacity
- Strong support from Board of Directors for renewable energy infrastructure and initiatives
- Organizational focus on revenue enhancement, continuous improvement
- Institutional capacity to develop and test innovative processes
- Result: EBMUD is now operating a mature trucked waste program (started in 2002)

Plant Flows
Annual average daily: 80 MGD
Secondary capacity: 168 MGD
Primary capacity: 320 MGD

Oakland, California

Reinventing a WWTP as a "Green Factory"

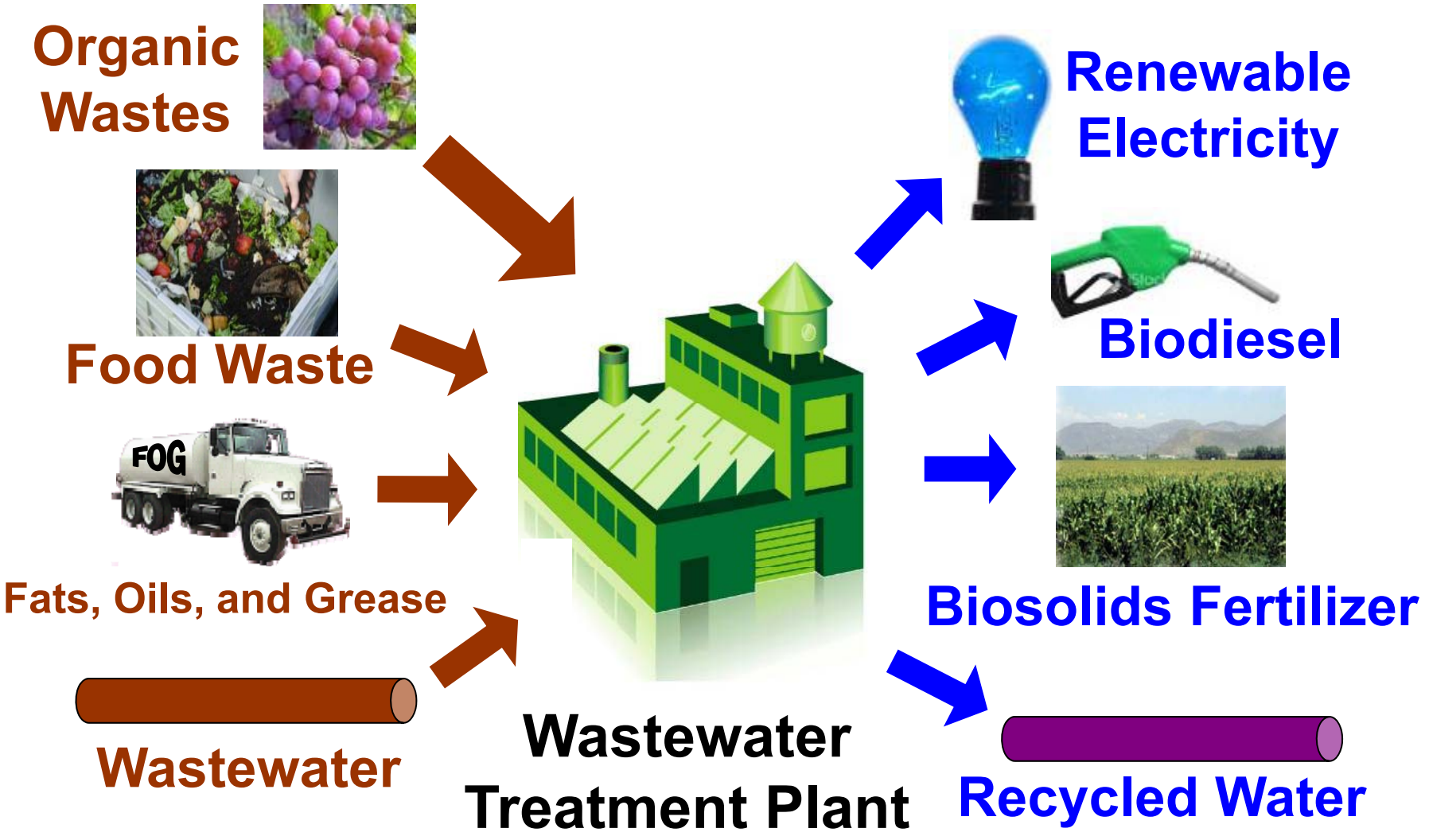
- An Emerging Role for WWTPs

  Discharger → **Protector** → **Provider**

- Driving Forces
  - Sustainability focus
  - Environmental stewardship
  - Economic benefits
  - Climate change impacts

- Producing green products helps reduce carbon footprint
- Maintain focus on NPDES permit compliance

EBMUD's "Green Factory" Model



Resource Recovery Program
Trucked Waste Types

Start (2002)

Expanding Scope of Program

Today

- Septage
- Fats, oils, and grease (FOG)
- Food processing waste
- Winery waste
- Industrial/commercial process waste
- Animal processing waste (chicken/beef blood, turkey lungs)
- Municipal and agricultural lagoon wastes

EBMUD typically accepts 100 trucked waste deliveries per day

Solid and Liquid Waste Receiving Station

Food Waste Program
Source Material

Food Waste Collection Bins

“High Quality” Food Waste

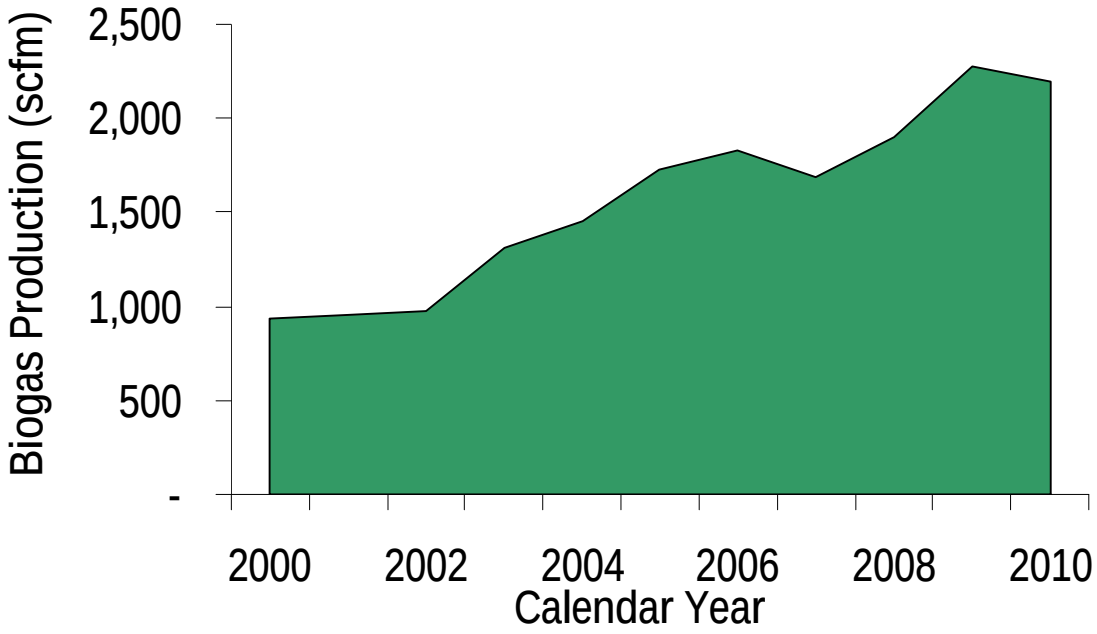
Food waste comes from SF Bay Area communities and commercial facilities

Commercial Food Waste Challenges
Contamination

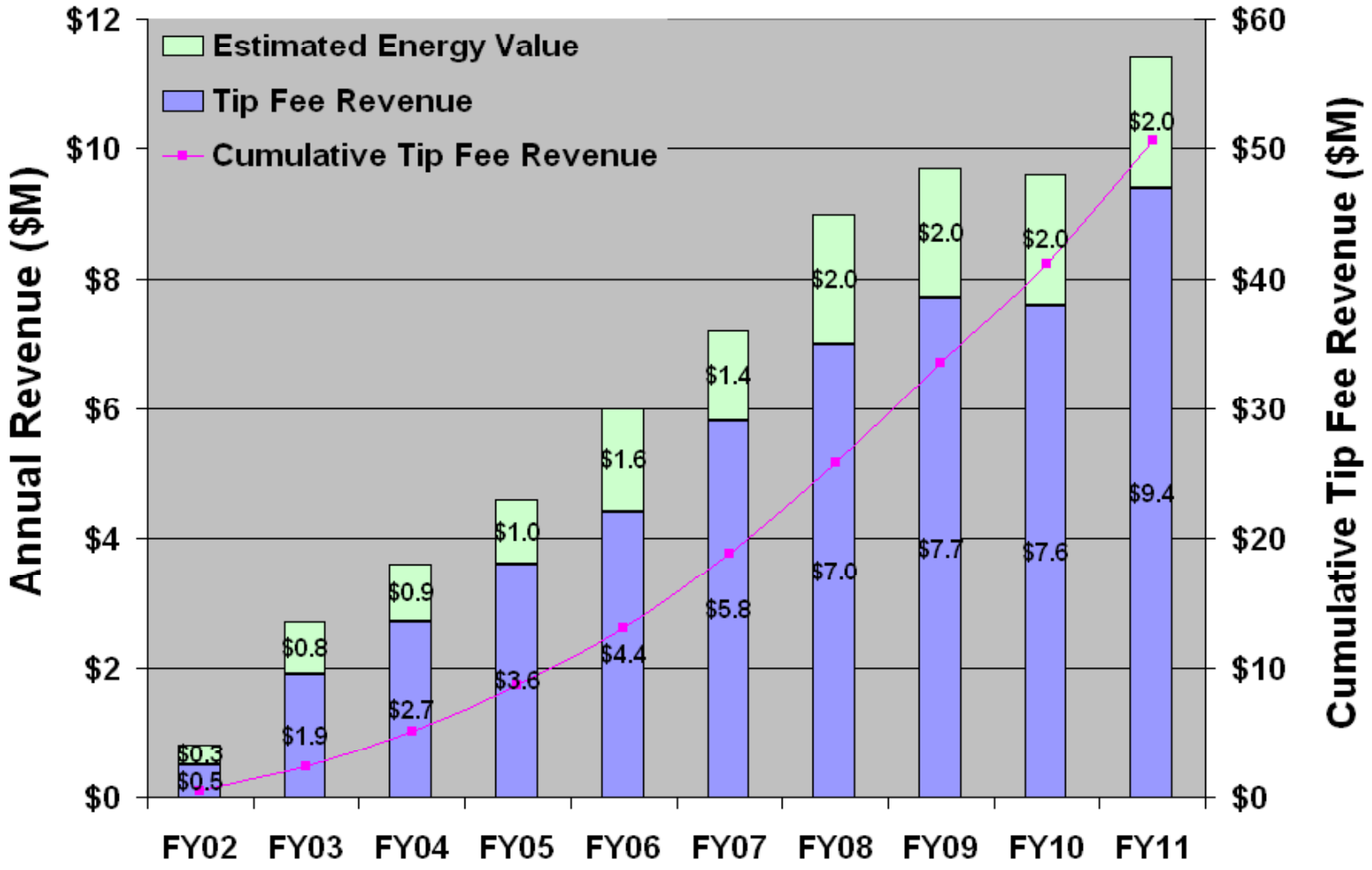
Preprocessed Food Waste Delivery at EBMUD MWWTP

Renewable Energy Program
Increased Biogas Production

- Significantly increased biogas production
- Increased renewable energy generation
- Diverts wastes from landfills
- Generates tip fee revenues of $8M+ per year



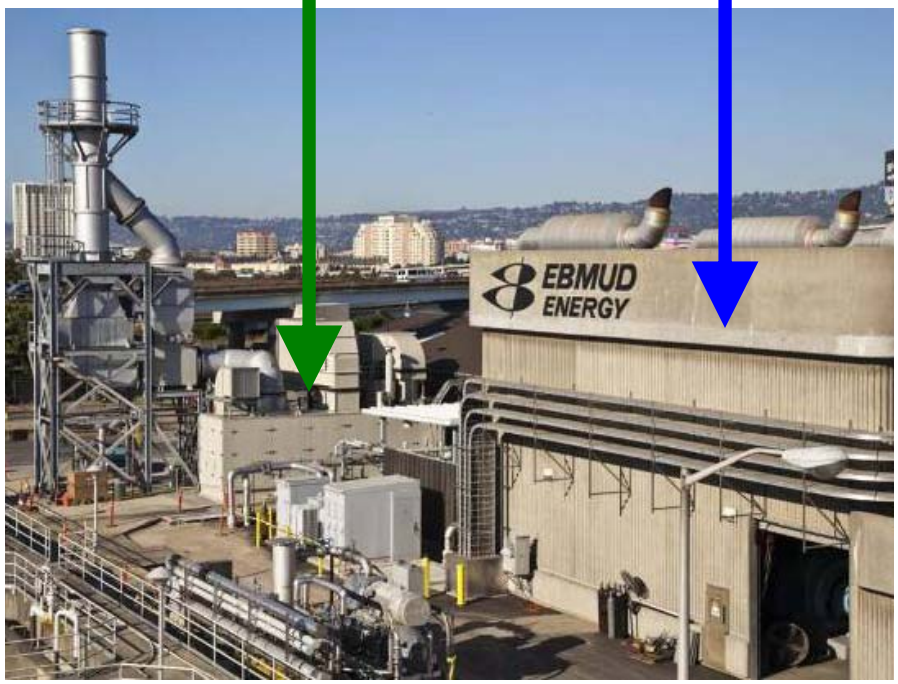
Tip Fee and Energy Revenue (FY02-FY11)



Power Generation Station Expansion Project

New Gas Turbine Plant (4.5-MW Capacity)

Existing Engines (6.6-MW Capacity)



New biogas turbine allows EBMUD MWWTP to become energy self-sufficient

Three 2.2-MW engines historically met 40% of plant demand

First WWTP in U.S. to Become a Net Electricity Provider

Net Electricity Provider

Electrical Grid

Wastewater Treatment Plant

2012

Generation:	6MW
Demand:	5MW
Net Sales =	**1MW**

1 MW ≈1,000 households

Key Challenges
Legal Issues

- Accepting wastes outside service area
- Public agencies competing with private companies
- Ownership of renewable energy credits (RECs) and greenhouse gas offsets

Key Challenges
Contractual Issues

- Accepting non-binding contracts with “outs” for both parties
- Choosing between exclusive vs. open contracting processes
- Enforcing performance specifications for new technologies/applications
- Protecting “intellectual property” and associated patents
- Negotiating contracts for sale of excess power

Key Challenges
Regulatory Issues

- Addressing new, duplicative regulatory oversight
- Reconciling existing local limits with new limits for trucked wastes
- Navigating safety/liability issues associated with trucked wastes
- Developing innovative approaches to acceptance of wastes at a POTW

Key Challenges
Permitting Issues

- Incorporating trucked waste program in NPDES permits
- Navigating new permitting arenas
  - State/Regional Water Boards
  - CalRecycle
  - CA Dept. of Food and Agriculture
- Developing a trucked waste permit program
  - Algorithm for screening new wastes
  - Acceptance, monitoring, auditing, enforcement, tracking
  - Accepting hazardous wastes
- Key Approach: Demonstrating compliance through full-scale testing

Key Challenges Managing Risk

- Securing trucked wastes to offset financial risk associated with large capital investments
  - Potential loss of existing waste streams, no guarantee of future waste streams
- Limiting information sharing to avoid and/or delay competition from nearby POTWs
- Ensuring public benefits outweigh potential impacts to maintain program support
- Balancing cost effectiveness against political support for “green projects” on path to achieving energy self-sufficiency

Key Challenges
Labor Issues

- “Stretching” existing job classifications to meet non-traditional POTW work needs
- Organizational change and acceptance with new hazards and responsibilities
- New union bargaining interests related to working conditions (odors, safety, etc.)
- Difficulty in sharing program benefits directly with “on-the-ground” staff
- Utilizing existing workforce/new hires vs. developing public/private partnership

Key Challenges
Financial

- Choosing not to establish capacity fees for trucked wastes
- Developing pricing structure and rates for truck wastes (tip fees)
- Ensuring that rates are based on cost of service and not generating a profit
- Choosing to pay for specific wastes if net benefit exists

Lessons Learned

- Adaptive management is key to addressing multiple, unanticipated challenges
- Energy self-sufficiency requires innovative thinking and problem-solving approach
- Journey to energy self-sufficiency is not without risk—competition is real
- Be careful of what you pursue and mindful of unintended consequences
- A public agency must adopt a private sector business mentality to achieve success

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Questions?

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