



Conversion Technology

**A Potential Component of Our Community's
Integrated Waste Management System**

Executive Summary

- Receive update on progress of Conversion Technology Study since January 2008
- Receive Conversion Technology Feasibility Report
- Requested Board Actions to move forward

Urgency in Solid Waste Management

- Population growth since 1990 → 18%
- Growth in waste generation since 1990 → **54%**



Urgency in Solid Waste Management

- Limited permitted landfill capacity
- Projected cost increases of landfill operations
- Environmental impacts of the community's waste



Urgency in Solid Waste Management

- CT Meets these challenges
 - Long term waste management plan
 - Cost competitive
 - Mitigates environmental impacts of our community's waste
 - Creates Green Energy
 - Increases diversion
 - Limits water & air impacts

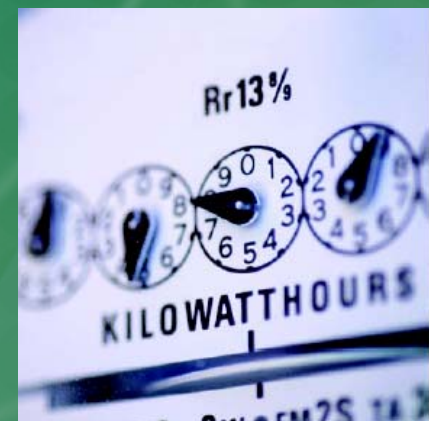
Urgency in Solid Waste Management

- In January: LA City, LA County, San Diego City – Santa Barbara County & City
- In the past four months: Sacramento City, Santa Cruz County, San Jose City, and the Salinas Valley Waste Authority



What is Conversion Technology (CT)?

- The process of breaking waste down more quickly in a controlled environment to produce energy and/or marketable products



Types of CT

- Anaerobic Digestion/Biological
- Thermal
- Hydrolysis/Chemical
- Mechanical/Combination



(Not combustion or incineration!)

Differences of CT

Thermal

- Higher net energy output/revenue
- Less residual (inert)
- More complicated permitting process
- Higher initial capital costs

Anaerobic Digestion

- Lower net energy output/revenue
- More residual (inert)
- Less complicated permitting process
- Lower initial capital costs

The background features a repeating pattern of green circles of varying shades. Overlaid on this are several large, semi-transparent circles in different colors (light green, teal, yellow) and abstract, glowing patterns that resemble light trails or energy fields.

Feasibility Report

CT can accomplish community goals

Developing the Feasibility Report

- Based on **goals and criteria**
 - Developed by the staff of both the City & County of Santa Barbara
 - Presented to all affected jurisdictions
 - Vetted by affected stakeholders



Developing the Feasibility Report

- RFI developed & issued to 25 companies (Feb 2008)
 - Project Goals
 - Project Size (100,000-220,000 tpy)
 - Project Location (Tajiguas Landfill – 6 acres)
 - Waste Characterization (CIWMB 2004 Statewide Study)
 - Evaluation Criteria
- Information Requested by RFI
 - Demonstration that Evaluation Criteria are met
 - Response due date of March 7, 2008
- Eleven (11) responses – Eight (8) determined feasible

Anaerobic Digestion

Project Developer and/or Technology Supplier (Listed Alphabetically)	Reference Facility	Major Products
CA Renewable Technologies	Tel Aviv, Israel 150 tpd (2003) MSW	Electricity Recyclables Compost
Ecocorp	Barcelona, Spain 900 tpd (2001) MSW	Natural gas CO ₂ Recyclables Compost

Anaerobic Digestion

- Diversion rate: 70% - 80%
 - Assumes sale or use of compost as alternative daily landfill cover
- First-year tipping fee: \$40 - \$60 per ton
- Capital cost: \$30 - \$40 million
- Operating cost: \$4 - \$5 million
 - Offset by sale of commodities – energy, recyclables & compost

Thermal Processing

Project Developer and/or Technology Supplier (Listed Alphabetically)	Reference Facility	Major Products
AdaptiveNRG (Plasma)	Monterey, Mexico 100 tpd (2005) MSW and other	Electricity Metals Ash Product
International Environmental Solutions (Pyrolysis)	Romoland, California 50 tpd (2004) MSW, MRF residuals	Electricity Recyclables Carbon Char
Interstate Waste Technologies (Gasification)	Chiba, Japan 330 tpd (1999) MSW, Industrial	Electricity Metals Aggregate Other
Plasco Energy Group (Plasma)	Ottawa, Canada 110 tpd (2007) MSW with other	Electricity Metals Aggregate Other
Tajiguas Partners (Gasification)	Genting, Malaysia 67 tpd (1998) MSW	Electricity Biofuels (future) Recyclables Ash Product

Thermal Processing

- Diversion rate: 85% - 100%
 - Higher rate assumes sale of aggregate as road base
- First-year tipping fee: \$50 - \$100 per ton
- Estimated capital cost: > \$60 million
- Operating cost: \$6 - \$18 million
 - Offset by sale of commodities – energy, metals & aggregate

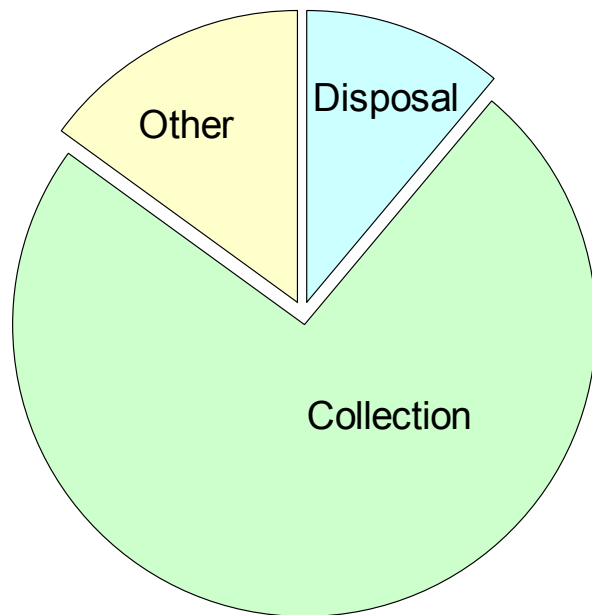
Other Technology

Project Developer and/or Technology Supplier (Listed Alphabetically)	Reference Facility	Major Products
Herhof California (Biological Drying, Mechanical Separation, Off-site Combustion)	Osnabruck, Germany 350 tpd (2006) MSW	Stabilat Fuel Recyclables Metal Glass Mineral Fraction

Other Technology

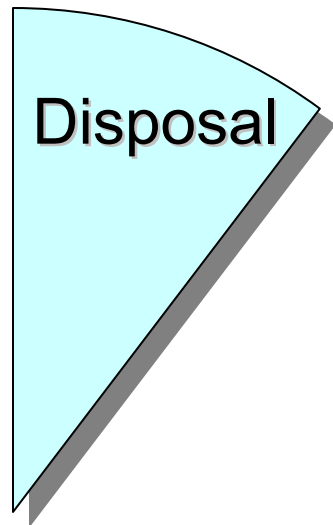
- Diversion rate: ~70%
 - Assumes sale or use of mineral fraction for road construction or alternative daily landfill cover
- First-year tipping fee: <\$100 per ton
- Capital cost: \$90 million
- Operating cost: \$11 million

What is the impact of the tip fee to rate payers ?



- A typical household trash bill includes three components:
 - Collection (74%)
 - Other (15%)
 - Disposal (11%)

What is the impact of the tip fee to rate payers ?



Only 11% of trash bill!

- Possible cost increase:
 - Tip Fee of \$100.00 = **less than \$4.00** increase per month to the residential ratepayer

Important Decisions Needed to Assure Quality RFP:

- ▶ Roles & Responsibilities
- ▶ Contractual Considerations
- ▶ Technical Evaluations

RFP: Roles & Responsibilities

► Likely Roles & Responsibilities:

- ☑ Site leasing at Tajiguas Landfill
- ☑ Residual disposal at Tajiguas Landfill
- ☑ Design/Construction Company responsibility
- ☑ Public Outreach City/County lead

RFP: Roles & Responsibilities

- ▶ Decisions Yet to be Made:
 - ❑ Participating Jurisdictions
 - ❑ Waste Supply
 - ❑ Ownership
 - ❑ Operations
 - ❑ Financing
 - ❑ Permitting

Needs Additional Development for Quality RFP

- ▶ Contract Terms
 - Design/Performance Standards
 - Key Terms & Conditions (contract principles)
- Technical Studies
 - Site evaluation
 - Waste characterization study

Future Board Actions

- August/September
 - Update on RFP process including resolution of
 - Waste flow
 - Ownership
 - Financing
 - Direction to complete technical studies
- December
 - Approve and direct release of RFP

Requested Actions

- Receive report on the feasibility of siting a conversion technology facility at the Tajiguas Landfill
- Approve list of eight (8) qualified vendors

Requested Actions

- Direct staff to:
 - Begin drafting RFP directed at short listed vendors;
 - Direct staff to conduct outreach presentations to potential participating jurisdictions and interested community groups;
 - Direct staff to hold a public forum for elected officials and staff to discuss potential legal arrangements for governing the facility; and
 - Return in August/September with the results of the presentations and public forum.

Thank You



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