

RENEWABLE Energy
FROM WASTE
CONFERENCE

Take Aways REW Conference San Jose, CA

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Take Aways

- City of San Jose
 - Commercial collection market closed
 - New routes and customer training
 - Costs for commercial accounts increased – ~ 20%
 - New stuff is up and running!
 - Cooperation among government and private entities

Category	Percentage
Disposal	31%
Collection-MSW	41%
Collection-Recyclables	20%
Recycling/Processing	8%


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Take Aways (continued)

- Anaerobic Digestion
 - Wow...it's happening in more and more places!
 - Many ways to do it too!
 - Odor generation needs to be addressed in design and operations
 - Bio-methane has higher value than methane
 - \$14 vs. \$3.61 per million BTUs
 - CHP, soil amendment and fertilizer products too
 - Organics bans in states and cities helps accelerate
 - CA providing funding and expedited permitting



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Take Aways (continued)

- Ramsey – Washington Counties, MN perspective
 - Doing more cost more; found a way to pay the extra cost
 - Waste is a resource – need to find a way to use it locally
 - Design for flexibility
 - Need robust and sincere public policy communications
 - Great to have elected officials who make fact-based decisions!



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Take Aways (continued)

- Edmonton, Alberta
 - MBT in North America!!
 - Enerkem to make methanol to higher valued chemicals
 - Adding AD next
- Infinitus-Montgomery, AL
 - From 1% to 60% to 75% recycling City's collected waste stream
 - \$28 per ton tipping fee
 - "Products" selling at 'high' end values
 - AD to CNG for City collection vehicles (future)

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Take Aways (continued)

- Financing and Contracting for CT
 - \$\$\$, lawyers, and bankers will be needed
 - And, it's very complicated
 - Negotiated procurements not bids
 - It takes a long time

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graph TD; Bondholders --- IDA --- DebtEquity[Debt/Equity]; IDA --- OwnerOperator[Owner/Operator]; MunicipalityAuthority[Municipality/Authority] --- OwnerOperator; WSA --- Haulers; WSA --- OwnerOperator; GA --- Parent; GA --- OwnerOperator; Permits --- PermittingAgencies[Permitting Agencies]; Permits --- OwnerOperator; LandfillOwner[Landfill Owner] --- OwnerOperator; MaterialsEnergy[Materials and Energy Markets] --- OwnerOperator;
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Take Aways (continued)

- Corporate sustainability is advancing
 - Corporations can get closer to zero waste and close the loop
 - With EfW, can get even closer to zero waste to landfills, and landfill free!
 - Decision-making based on life-cycle assessment analysis and not just bottom line
 - WTE can save on landfill emissions but -“The only waste that has no impact is waste not generated”

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Take Aways (continued)

- Some resources to look at:
 - U.S. EPA Municipal Solid Waste Decision Support Tool: <https://mswdst.rti.org/Login.htm>
 - U.S. EPA biogenic announcement: <http://www.epa.gov/climatechange/ghgemissions/biogenic-emissions.html>
 - **6th International Symposium MBT & MRF 2015; 5th - 7th of May 2015**
 - Hanover, Germany

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Take Aways (continued)

- R&D Roundup
 - We need more “EcoComplexes” across the world!
 - “MWPFS” are not “Dirty MRFs”
 - WTE offers significant energy production, land savings, and fuel savings with waste to energy and plastics to fuels technologies
 - SpecFUEL at a waste coal to electricity plant
 - Plastics to methanol production impacts (Edmonton - Enerkem)
 - PTO expansion means positive economic impact

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Take Aways (continued)

- R&D Roundup (continued)
 - Lots of waste worldwide that needs better management!
 - WTE needs to cost less
 - Low-speed, high torque shredders preferable
 - Cement kilns offer significant application for RDF
 - No funding in U.S. for WTE research
 - Campus and area organic waste + landfill gas to bio gas to CHP for university power, biofertilizer, and RNG!!
 - *Come visit UC Davis!!*

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WASTE IS A RESOURCE

*The time for conversion technologies
is here!!*

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*Where should REW Conference be
next year?*

- Edmonton, Alberta – see MBT in North America and Enerkem
- Montgomery, AL – see one-bin and Infinitus
- Orlando, FL – see Harvest Power AD at Reedy Creek/Disney World

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**RENEWABLE
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Thank you!

See you at REW - 2015!

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The slide features a dark red background with a large, light green curved shape at the top and bottom. The text is centered in white. The logos for the conference and GBB are positioned in the corners.