

RENEWABLE Energy
FROM WASTE
CONFERENCE

Take Aways REW Conference Orlando, FL

Kristin Smith, Managing Editor
Renewable Energy from Waste
And
Harvey W. Gershman, President
Gershman, Brickner & Bratton, Inc.

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Take Aways - Pre -Conference Workshop on Public Sector Planning and Implementation

- Projects take a long time
- Have constant communication with all parties involved
- Having a site it key
- Recycling should be part of the strategy

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Take Aways - Pre –Conference Workshop... (cont'd)

- 2-step RFQ then RFP preferred procurement approach
- Need involved and committed elected officials
- Understand risks, allocate them to shoulders that can bear the weight
- Having an Authority helps create space with the politics and election cycles

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Take Aways - Pre –Conference Workshop... (cont'd)

- Financing and Contracting for CT
 - \$\$\$, lawyers, and bankers will be needed
 - It's very complicated
 - Negotiated procurements not bids

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

- Landfills too cheap
- Renewable energy not worth enough
- Oil and recycling markets way down!
- Circular economy is putting emphasis on recovering value




5



Take Aways (cont'd)

- Policy failure in US to cause more REW
- DOD very involved in waste-to-fuels
- Watch Edmonton- Enerkem, Indian River- Ineos, Reno-Fulcrum, and Tees Valley/Air Products-Alter NRG
- In poor economies, use MSW to provide energy to move water to grow food



6

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Take Aways (cont'd)

Public Sector Procurements

Public sector needs to do better job procuring

Create value propositions for WTE/CT

Reasons Why Procurements Fail

- Costs too high
- No site
- Technology risk
- Inadequate waste supply
- Regulatory push back
- Fear of hurting recycling
- No financing
- Lack of political will

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Take Aways (cont'd)

- Collection is 60+ % of solid waste management costs
- Collection efficiency creates additional funding for processing and disposal!

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


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Take Aways (cont'd)

- Infinitus-Montgomery, AL Temporarily Closed
 - It is an economic burp, not a technical one
 - Stay tuned – they are trying very hard to work things out!
- AD opportunity to make biogas for your fleets
- What should we call it? RDF, EF, SRF, or eRDF
 - Let's just make it and utilize it!
- Cement manufactures need lots of fuel and can use if prepared properly
 - No residues...stays in cement!




9



Take Aways (cont'd)

- Miller-Coors is almost at Zero Waste to Landfill!
 - Extensive waste reduction (85%) and separations to do more recycling
 - Remainder to Waste to Energy
 - Change started over 10 years ago and now have ZWLF at 7 out of 8 facilities
 - 2020 goal of landfill free status



10

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Take Aways (cont'd)

- The purple “Energy Bag” pilot project for plastic film to oil; see:
 - <http://analysis.renewable-waste.com/project-analysis/dow-chemical-and-agilyx-join-forces-convert-plastics-oil>
 - <http://www.dow.com/energybag>
 - <http://www.citrusheights.net/295/Energy-Bag-Recycling>

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Project Status - Solid Waste Authority of Palm Beach County, FL




Source: SWA of Palm Beach County

- Able to divert 1.04 million tons of waste from landfill per year (3,000 TPD)
- Supplies 86,000 homes with “renewable” energy
 - In FL, 1 WTE MW counts as 1 Ton recycling
- Built, Owned, Operated by Babcock & Wilcox
- Construction price: \$668 million
- O&M cost: \$20.5 million annually
- Advanced emissions controls, ferrous and non-ferrous metals recovery
- Commercial ops – June 2015


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Take Aways (cont'd)

- 8 years to get from planning to commercial operations!
- Proven technology works!
- Permitting WTE and CT in Florida
 - Wouldn't it be nice if other states followed Florida's example!




13




Take Aways (cont'd)

- Since 2002, USDA Loan/Grant Program has funded over 10,000 projects with \$3+ billion in funding
- Loan/Grant to continue for another four (4) years – approx. \$800 million per year
 - See:
<http://www.usda.gov/wps/portal/usda/usdahome?contentidonly=true&contentid=2015/02/0034.xml>
 - Rigorous preparation and process to obtain funding and be part of the program




14



Take Aways (cont'd)

- ISRI to change recycled paper stock grades in 2016
 - Sorted clean news
 - Sorted residential paper
 - Sorted mixed paper
 - Hard mixed paper
- Stay tuned about one-bin mixed waste processing projects for residential waste



15



Take Aways (cont'd)

- Vadyxx – example of private investment for new CT
 - \$28 million invested for plastics to oil
 - Commercial plant started up and now fixing oxygen leak
 - 20,000 tons per year polyethylene wire chop to make 100,000 bbls per year of diesel/naptha



16

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Take Aways (cont'd)

- Prince William County, VA
 - Landfill complex being rebranded as Eco-Park!
 - Planning to reissue RFP for waste conversion demonstration project in 2016 – wants you to respond!
 - Advancing solar, wind and AD renewable energy infrastructure under P3 projects

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Take Aways (cont'd)

- Enerkem
 - First bio-refinery in North America
 - Edmonton: special relationship and advancing
 - 100,000 tons per year 'RDF' to make 10 million gallons of ethanol


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Take Aways (cont'd)

- MBT and CT is also coming to America...from Spain!
 - Abengoa
 - Valoriza Environmental Services
- North American MSW to fuels that can be shipping around the world to replace coal
- Reedy Creek - Harvest Power AD project
 - Very cool!




19



Take Aways (cont'd)

- Federal and state policies are misaligned with renewable energy and environmental goals
- Lots of goals and objectives to meet – unfunded!
- It's not the money, it's the money!



20



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WASTE IS A RESOURCE

*The time for more renewable energy
from waste is NOW!!*

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*Where should REW Conference be
next year?*

- Edmonton, Alberta – see MBT in North America and Enerkem
- Akron, Ohio – See Vadyxx, Vexor and KB BioEnergy
- Atlanta, Georgia – See Shaw Industries gasification plant

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Thank you!

See you at REW - 2016!

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23

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 Renewable Energy From Waste Conference and GBB Solid Waste Management Consultants are positioned in the top-left and bottom-left corners, respectively. A small page number '23' is located in the bottom-right corner.