



## 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 accelerated
  - CA providing funding and expedited permitted



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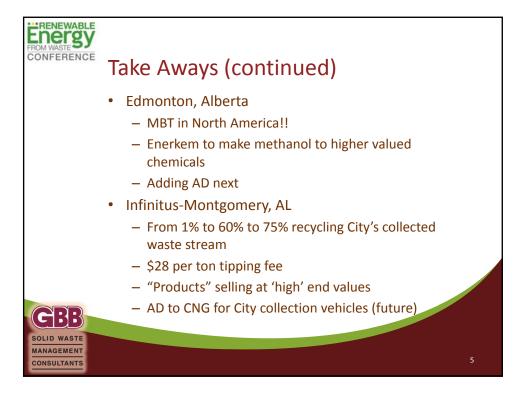


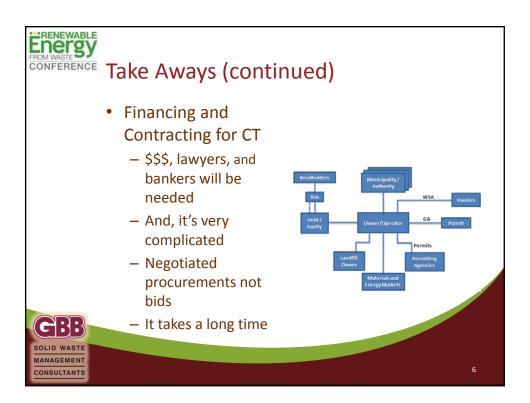
## Take Aways (continued)

- 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 factbased decisions!



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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: <a href="http://www.epa.gov/climatechange/ghgemissions/biogenic-emissions.html">http://www.epa.gov/climatechange/ghgemissions/biogenic-emissions.html</a>
  - 6<sup>th</sup> International Symposium MBT & MRF 2015;
    5<sup>th</sup> 7<sup>th</sup> of May 2015 wasteconsult
    - · Hanover, Germany

INTERNATIONAL



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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!!



LO





