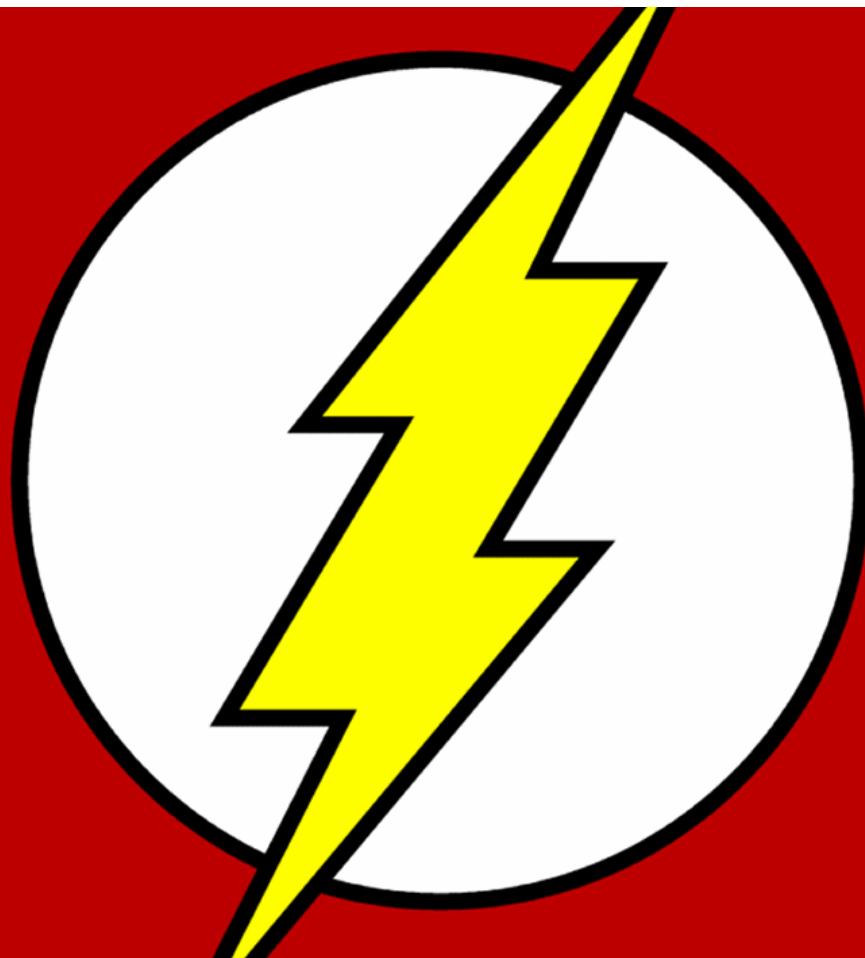


The Flash - Organics Processing



Obligatory Add(s)

- Please Join RCA – fees are a good deal!
- Consider sitting on board and committees and/or sponsoring this conference next year!
- Meet New RCA members IRSI
 - Leading the way in smart-scale thermal processing for waste reduction in Alberta
 - Chris Olsen, founder, is in the room
- Recycle your beverage containers at your favorite bottle depot. IT'S WORTH IT

~45%

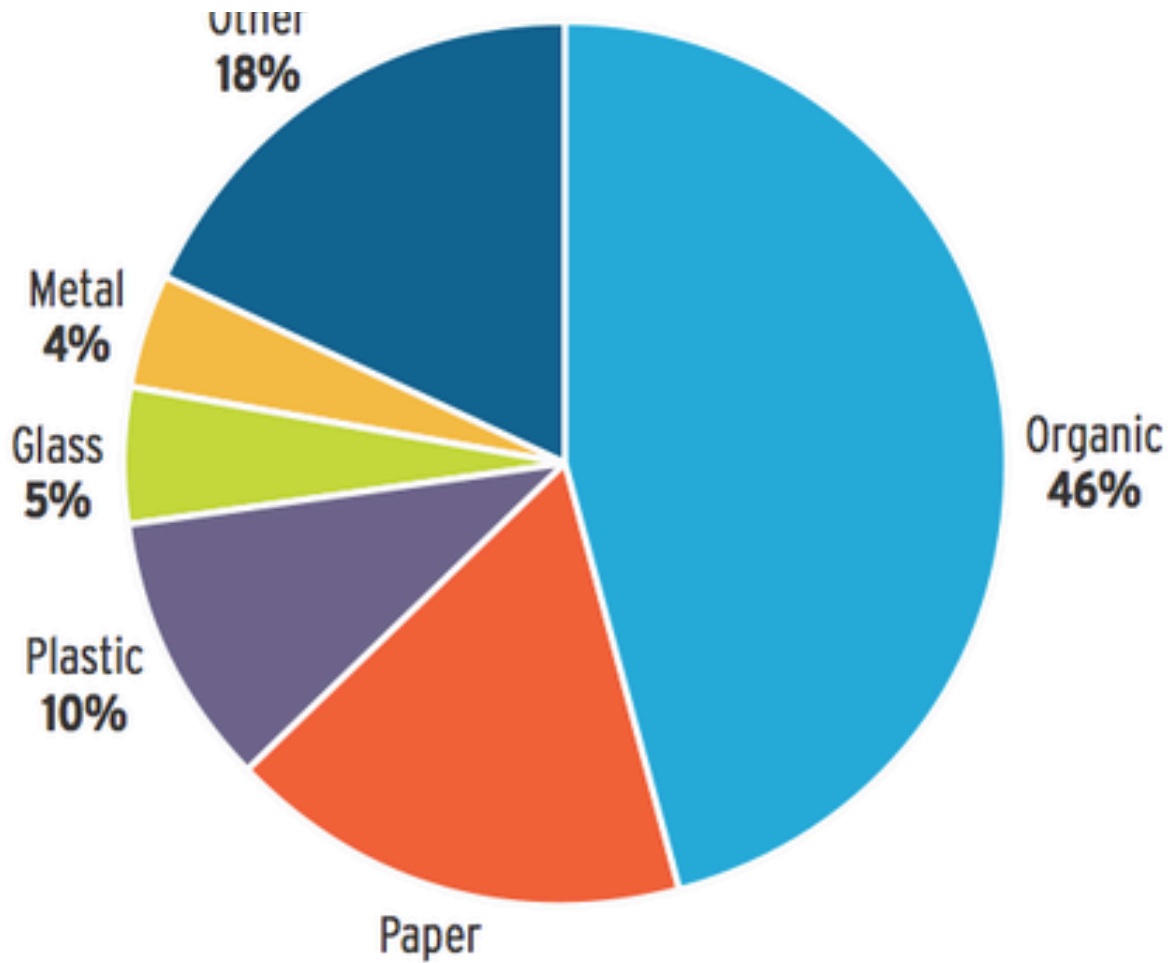


FIG. 7
Global
Solid Waste
Composition

300 kg/capita

- Alberta's 2015 Waste Target is 666kg/capita to landfill (a modest reduction over previous years)
- Future goals include seemingly largish reduction from 666 to 657 by 2017, 633 by 2018, and 620 by 2019
 - A total planned reduction of 46kg/capita, but...
- **45% of 666kg/ca = 300kg/capita**

1.3 Megatonnes / year

- Alberta's Climate Change Goal is 20 Megatonnes by 2020
- Each tonne of MSW organics diverted from landfill avoids AT LEAST, CONSERVATIVELY 1.1 tonnes of CO₂(eq) *(could be as much as 8)*

Mass MSW (kg)	TS	VS	PSI (m ³ /kgVS)	Y (m ³ CH ₄)	Y (kg CH ₄)	Y (CO ₂ e) kg	Y (CO ₂ e) MT	
1000		0.45	0.85	0.385	147.2625	317.350688	7933.76719	7.93376719

- 300kg time 1.1 times 4 million Albertans = 1.3 Million Tonnes CO₂(eq) ***per year*** (possibly 9.5 Megatonnes)
- ***At least 5% and possibly as much as 47% of Alberta's Climate Change Goal is on the table***

Ok then, what do we do with it?

- Hide it away (manage negative value)
 - Landfill
 - Land Apply
- Shrink the problem (neutralize negative value)
 - (some) composting
 - (most) Thermal Processing
- Turn it into something useful (recover/unlock value)
 - (rarely) Composting
 - (potentially) MBT
 - (rarely) Incineration
 - (some) Thermal Processing
 - (most) Anaerobic Digestion

~~Landfilling~~

- Landfilling has current and legacy issues
 - GHG's, leachate, odor, pests
 - Closure
 - Long term management post closure
- Organic-free (“Dry”) landfill would have many fewer issues

Composting?

- Composting has many issues
 - Hard to sell compost!
 - Odor and pest management
 - Contamination limits scope
 - Requires pre-treatment AND post treatment
 - Winter operations
 - GHGs

MBT?

- MBT (Mechanical-Biological Treatment) uses composting to do something, recognizing the value of compost is ~nil
 - (Almost) no pre-treatment
 - Chemical energy drives drying and removes easily putrescible fraction (the stinky nasty part) of combined waste stream
 - RDF is possible with remainder, and
 - Potential to more cost-effectively recover valuable recyclables from remainder

Thermal Processing

- Thermal Processing can be a little better
 - Makes waste into less waste
 - Often locks it into a state that is non-reactive
 - No leachate, no further GHG, no smell, no pests
 - May generate a useful and valueable product
 - Enerkem: petrochemicals, fly ash for concrete
 - IRSI: inert char
 - Requires pre-treatment (extent varies)
 - Post treatment to recover metals if needed/desired
 - **But** TP is moisture-limited – can't handle overly wet material

Anaerobic Digestion

- Can AD do what other organics processing approaches can't?
 - Still requires pre-treatment, and sometimes post treatment
 - But a broad range of moisture content is possible, and
 - Revenue streams from several sources make it more diversified in terms of risk profile:
 - Waste Management Services (tip fees)
 - Energy
 - Digestate
 - GHG
 - **More to come from our excellent panel!**