From: Paul Oostelbos
Sent: Wednesday, May 16, 2018 4:06 AM
To: Jake Martens
Subject: Re: Waste Management Technologies

Dear Jake,

My apologies for the delayed response.

It would be our pleasure to present our ideas for the management of residual waste to the Comox Strathcona Waste Management Board. Our preference would be June 7, 2018 at the Comox Valley Regional District boardroom, 550B Comox Road, Courtenay. I would come together with my colleague Ryan Lauzon, Director North-America. I hope this will still be possible.

Looking forward to come to Courtenay and meet the Board.

Met vriendelijke groet, Best regards, Mit freundlichen Grüßen,

Paul Oostelbos

Waste Treatment Technologies Netherlands B.V. – Münsterstraat 14 – 7575 ED Oldenzaal – Netherlands

WASTE TREATMENT TECHNOLOGIES

Comox Strathcona Waste Management Board
Waste to Energy Meeting

June 7th,2018

INTRODUCTION WTT

In a nutshell

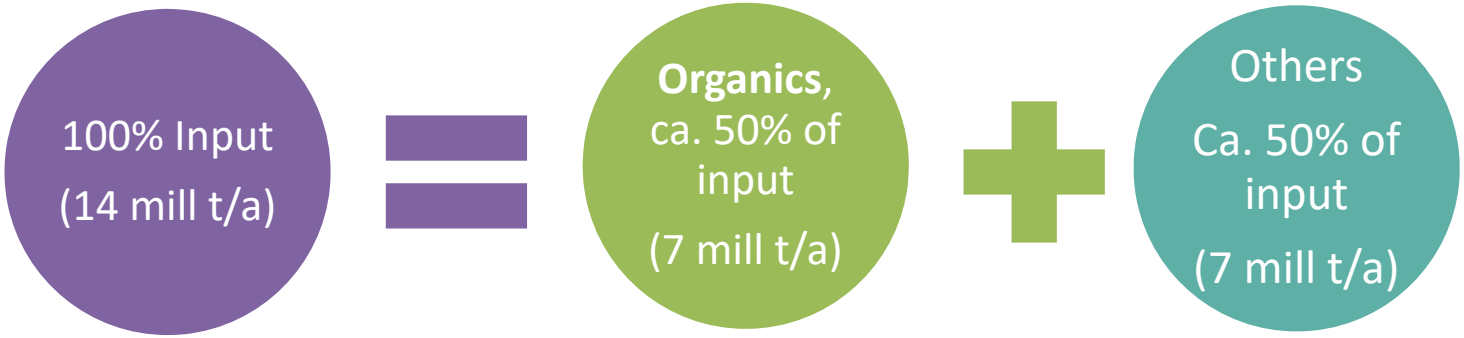
Competent company with a worldwide proven track-record

- WTT = Waste Treatment Technologies
- Founded in 1996 with currently offices in the Netherlands, Canada, China and Australia
- In total >40 highly educated and experienced employees
- Successfully completed over 125 projects (>1,200 bio-tunnels) worldwide
  - With an estimated combined processing capacity over 7,000,000 tons per annum!

WTT Offices,worldwide

WTT Corporate Office Netherlands

WTT Canada



INTRODUCTION WTT

Tailormade solutions

WASTE TREATMENT TECHNOLOGIES

- Why Tailor-made?
  - Waste is never the same
  - Different Recycled Products markets
  - Different level of clients
  - Different climatological conditions
  - Different legislation per continent, country and state

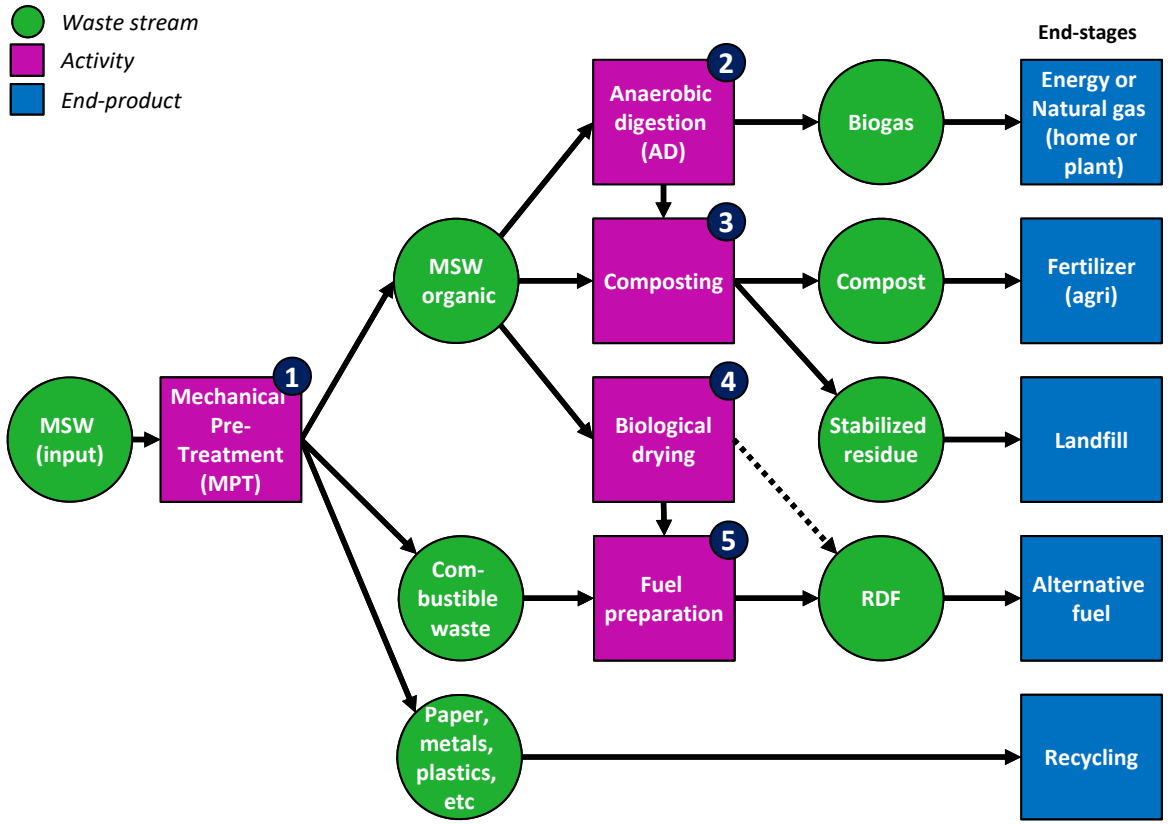
- Projects are tailor-made to suit each individual case by combining;
  - Local parameters
  - Best Available Techniques (BAT) on the market
  - D&B and M&O expertise
  - Energy efficiency
  - Cost effectiveness

WM FACILITY TECHNOLOGY BLOCKS

Building Blocks for Tailor made solution 1/2

WASTE TREATMENT TECHNOLOGIES

Simplified overview of an integrated mechanical and biological treatment (MBT) facility



WM FACILITY TECHNOLOGY BLOCKS

Building Blocks for Tailor made solution 2/2

WASTE TREATMENT TECHNOLOGIES

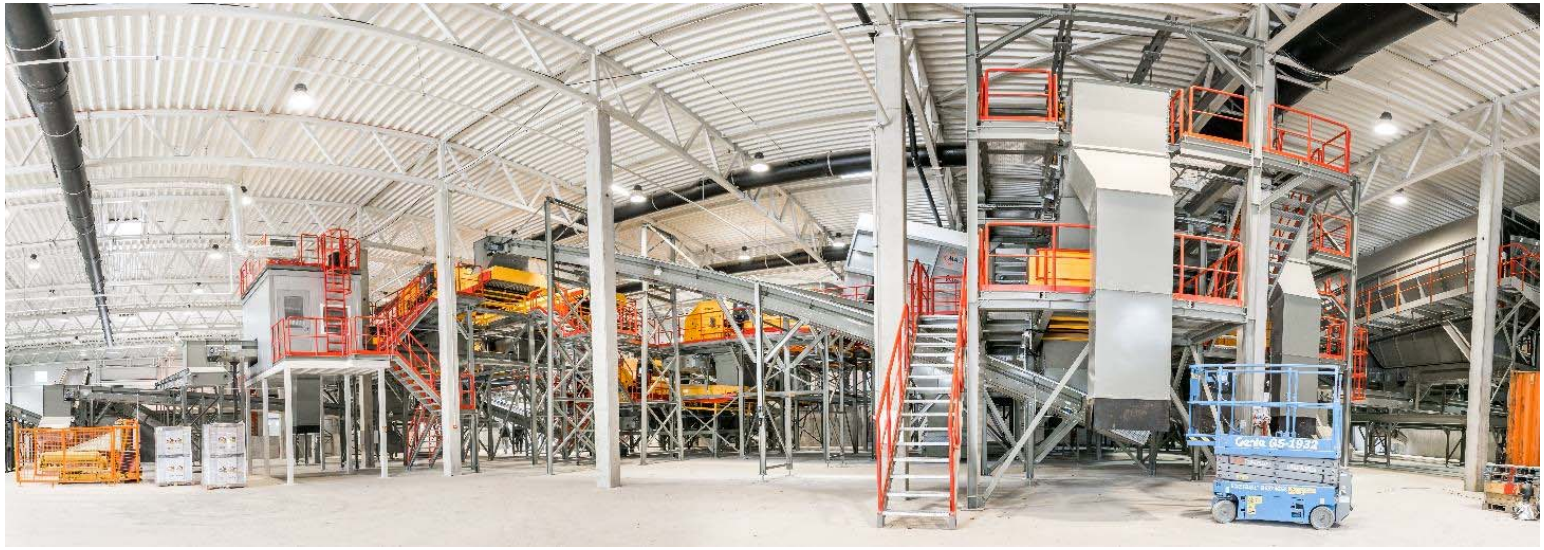
Process step	1 Preparation/ separation at plant	2 Anaerobic digestion (AD)	3 Composting	4 Biological drying	5 Fuel preparation
					
Process Description	▪ Targeting an organic rich fraction; ▪ Combustible fraction ▪ And or recyclables	▪ Extraction of biogas	▪ Transform organic matter in compost	▪ remove moisture from a waste stream and hence reduce its overall weight	▪ The production of Refuse-derived fuel (RDF) by shredding and/or pelletizing solid waste

TECHNOLOGY BLOCK – 2

Pre-treatment / Recycling

WASTE TREATMENT TECHNOLOGIES

1

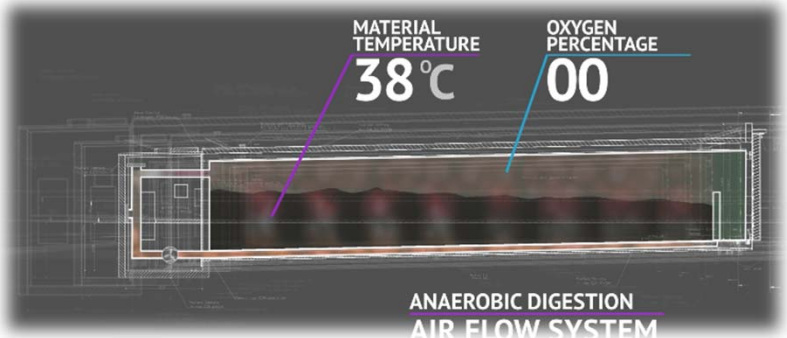


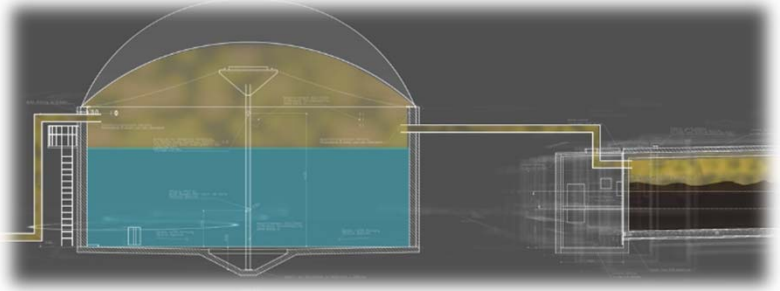
TECHNOLOGY BLOCK - 2

In-vessel dry batch digestion

WASTE TREATMENT TECHNOLOGIES

2

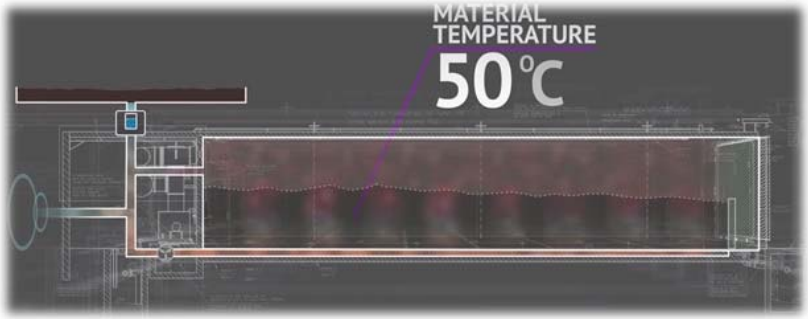


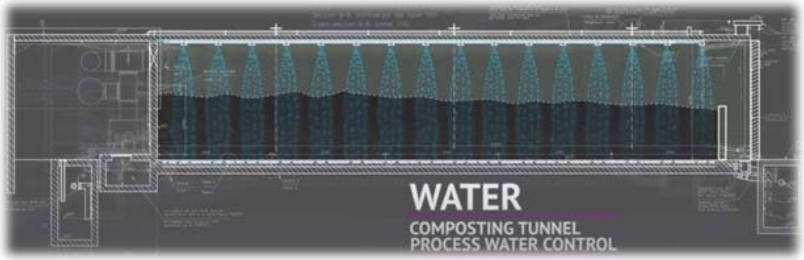


TECHNOLOGY BLOCK – 3

In vessel composting

WASTE TREATMENT TECHNOLOGIES





CSWM PROCESSING OPTIONS

Bottom line review

WASTE TREATMENT TECHNOLOGIES

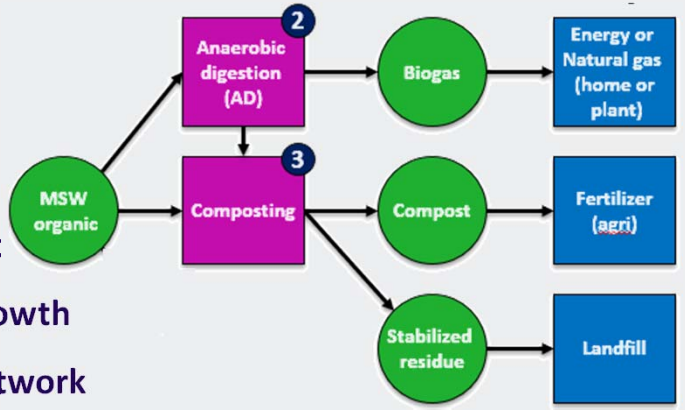
Option	1	2a	2b	3a	3b
Processes	Biodrying	Biodrying + RDF	Composting + RDF	Biodrying + AD + recycables + RDF	Composting + AD recycables + RDF
Feedstock	50,000 tpy	50,000 tpy	50,000 tpy	50,000 tpy	50,000 tpy
Building Blocks	4	1 + 4 + 5	1 + 3 + 5	1 + 2 + 4 + 5	1 + 2 + 3 + 5
Products					
- Biogas	-	-	-	x	x
- Compost	-	-	x	-	x
- Metals	-	x	x	x	x
- Paper/Cardboard	-	-	-	x	x
- Plastics	-	-	-	x	x
- RDF	-	x	x	x	x
- Residuals	x	x	x	x	x
Staffing	5	< 10	app. 10	10 - 15	10 - 15
Waste Div. Potential	max. 50%	app. 75%	> 75 %	> 75 %	> 90%
Energy Potential	none	mediocre	mediocre	large	large
GHG Reduction	small	mediocre	mediocre	large	largest

Case Study Blocks 2 and 3

Closing the loop on organics

WASTE TREATMENT TECHNOLOGIES

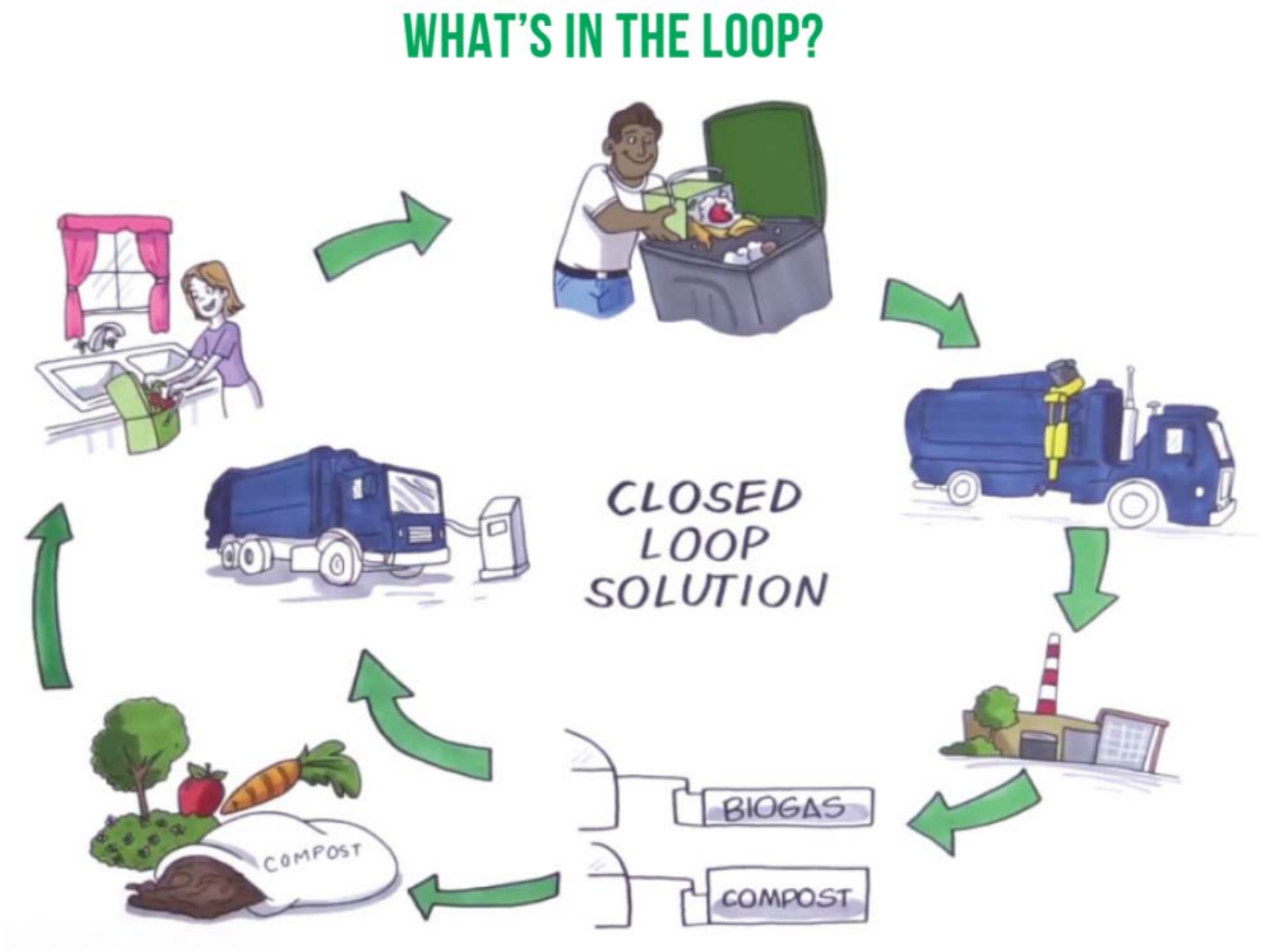
PROJECT:	**Surrey Biofuel Facility**
LOCATION:	**Surrey, Vancouver, CANADA**
CUSTOMER:	**Orgaworld Design-Builder Limited Partnership (Part of Renewi)**
TYPE:	**Building block 2 & 3 – Digestion followed by Composting**
	6 AD Tunnels
	4 Hybrid Tunnels
	7 composting tunnels
NUISANCE CONTROL:	**State-of-the-art odour abatement**
OUTPUT MATERIAL:	**Compost for landscaping, crop growth**
	Biomethane fed to natural gas network
	and used to fuel truck fleet
OPERATIONAL :	**Since late 2017**



Case Study Blocks 2 and 3

Closing the loop on organics

WASTE TREATMENT TECHNOLOGIES



Thank you for your attention

Contact details:

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r.lauzon@wtt.nl