Denis Dunne

Subject: FW: Climate Action Plan 2020 - ORCA Food Waste Technology
Attachments: ORCA Launch Event Presentation.pdf; WPM Research Design CIT Research.doc

From: damian@wpmgreenenergy.com [mailto:damian@wpmgreenenergy.com]
Sent: 21 February 2020 17:06
To: Niall Mcloughlin
Subject: FW: Climate Action Plan 2020 - ORCA Food Waste Technology

Dear Niall,
I trust all well.
I have just sent / submitted our climate exchange comments but the email has bounced back.
Could I request that the details are included via this email ?
Many thanks,
Regards,
Damian Condon
WPM Green Energy
Bushfield House
Philipsburgh Avenue
Fairview
Dublin 3
Office:
01 857 6767
Mobile:
085 7144035
Mail: damian@wpmgreenenergy.com
Web: www.wpmgreenenergy.com

From: damian@wpmgreenenergy.com
Sent: 21 February 2020 17:04
To: 'wastecomments@dcccae.gov.ie'
Subject: FW: Climate Action Plan 2020 - ORCA Food Waste Technology

From: damian@wpmgreenenergy.com <damian@wpmgreenenergy.com>
Sent: 21 February 2020 16:55
To: 'wastecomments@dccca.gov.ie' <wastecomments@dccca.gov.ie>
Subject: Climate Action Plan 2020 - ORCA Food Waste Technology

Good afternoon,
Following the recent announcement of the Consultation process re the Climate Action 2020 Plan please find the submission from our Company in relation to the area of Food Waste Management. We are confident that our technology will contribute and benefit the Circular Economy.
This mail includes 2 attachments.
The first is our ORCA Presentation document and the second attachment outlines the research that we will carry out in partnership with Cork Institute of Technology (CIT).
Background:
WPM Green Energy is delighted to be working to help Ireland tackle and reduce our food waste management issues by introducing new products and innovative ideas which will help the environment, reduce the Carbon foot print and create employment in the Green Sector. We have met and listened to a number of key stakeholders in the Hospitality and Food waste sectors and they have all agreed that an innovation like ORCA is needed to cope with the problems associated with the management of food waste in Ireland.
We see ORCA as that solution with the numerous benefits it brings to the sector.
We have also introduced ORCA to Richard Bruton's Department on Climate Action.

CIT in Cork are very eager to trial ORCA and have asked to have the machine installed in the University to have a comprehensive report done on the technology and the operation of the machine. CIT's experience and reputation in the tech innovation sector is invaluable to our research for ORCA.
We hope that this will be a great step forward in the Irelands fight against food waste management that will bring so many benefits to our country and make us a leader in the food waste management sector.
Thank you,
Regards,
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WPM
Green Energy

The Smart Solution to Food Waste

ORCA

What's the Problem?

TRUCK DEPENDENT

- Road and city congestion
- Time consuming
- Harmful emissions

LACK OF TRANSPARENCY

- Destination uncertainty
- Cost variability
- Routine price escalation

INEFFICIENT

- Segmented stages = more costs
- Fragmented market operating in silos
- Inaccessible – not a local solution

Our Vision

HYPERLOCAL
+
DISTRIBUTED

ORCA

How we're more efficient

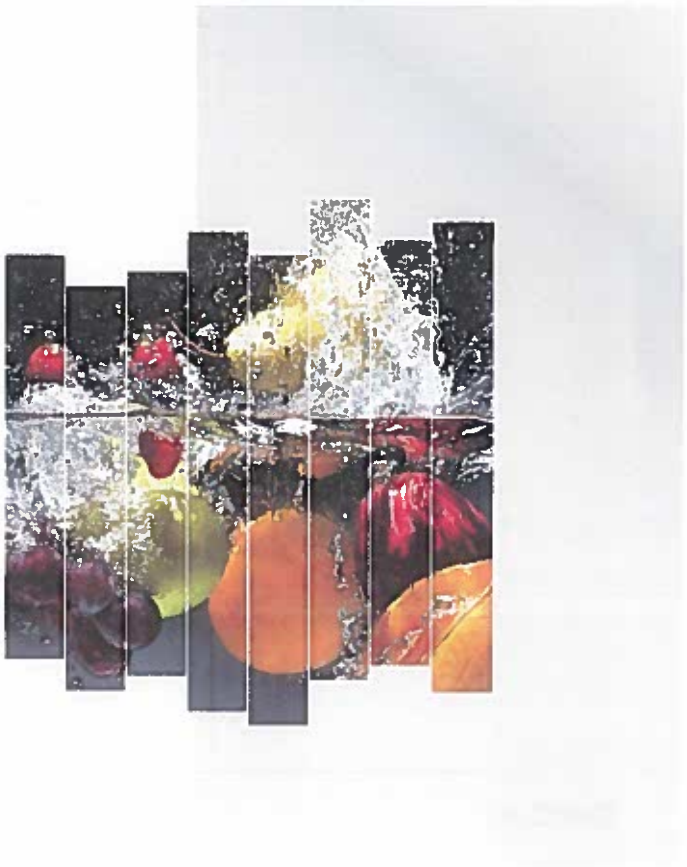
TRADITIONAL SYSTEM

ORCA SYSTEM

ORCA

How it works

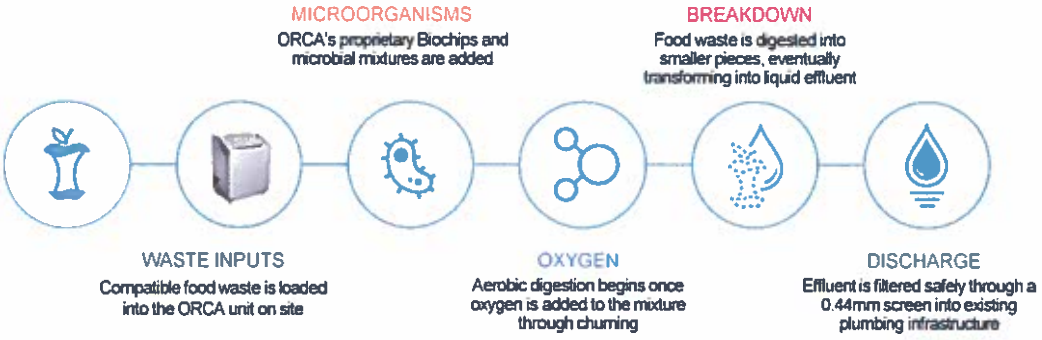
The ORCA uses an aerobic digestion process to digest food waste into effluent that safely discharges into the sanitary sewer system.



ORCA

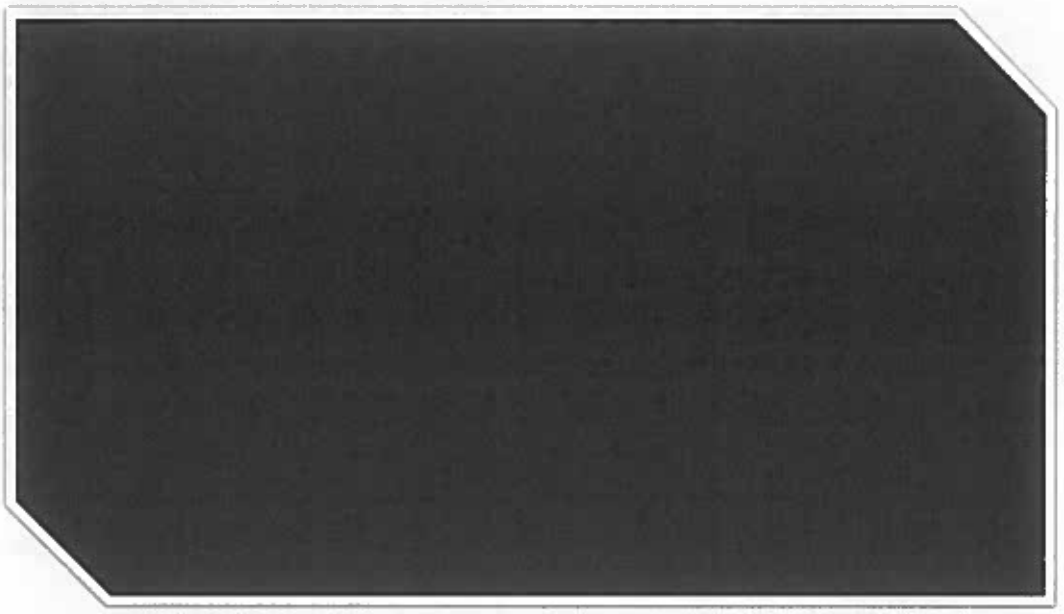
How it works

No solids to cart/haul away, no grinding, no shredding.



ORCA

ORCA in Action



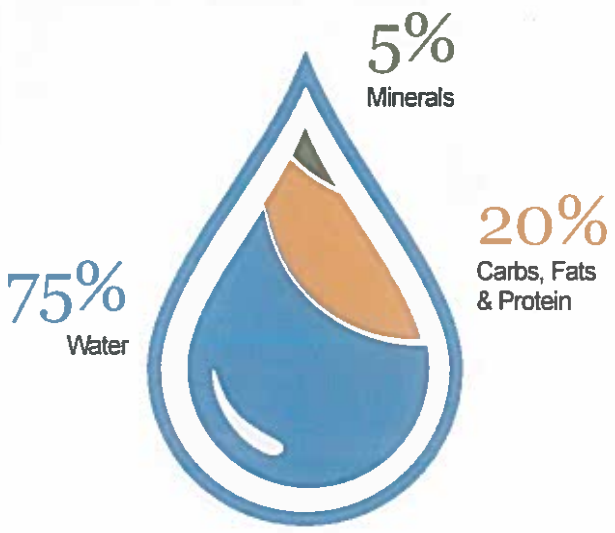
ORCA

"It's far and away the best solution at disposing of wet waste in a sustainable, efficient and cost effective way. There aren't any carting or environmental costs that you'd have with composting. It's the best."

— David Clark, Vice President, Restaurant Associates

ORCA

What is effluent?



ORCA

Where does the effluent go?

Wastewater treatment plants are very efficient at recovering nutrients and energy from food waste.

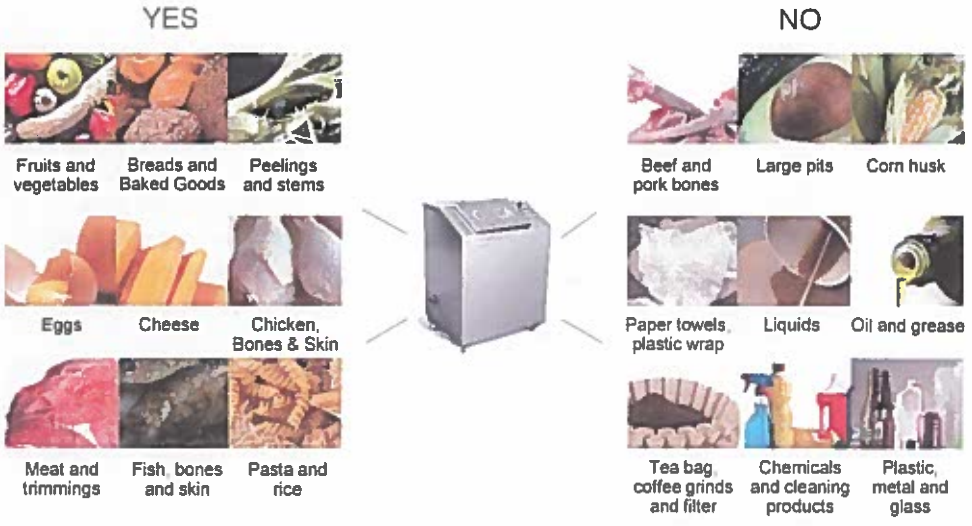
WATERSHED

BIOGAS

LAND APPLICATION

ORCA

What can you feed ORCA?



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What is an LCA?

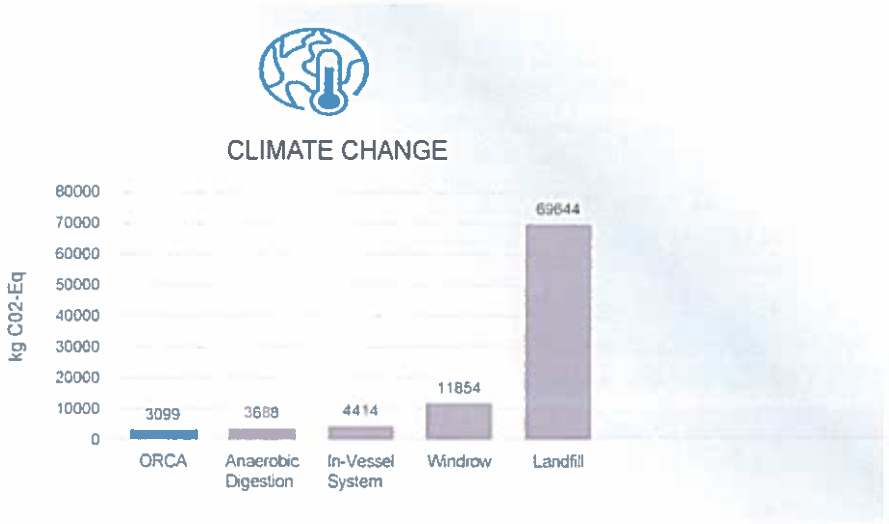
A Life Cycle Assessment (LCA) is a technical assessment of the environmental impacts associated with all the stages of a product's life.

ORCA

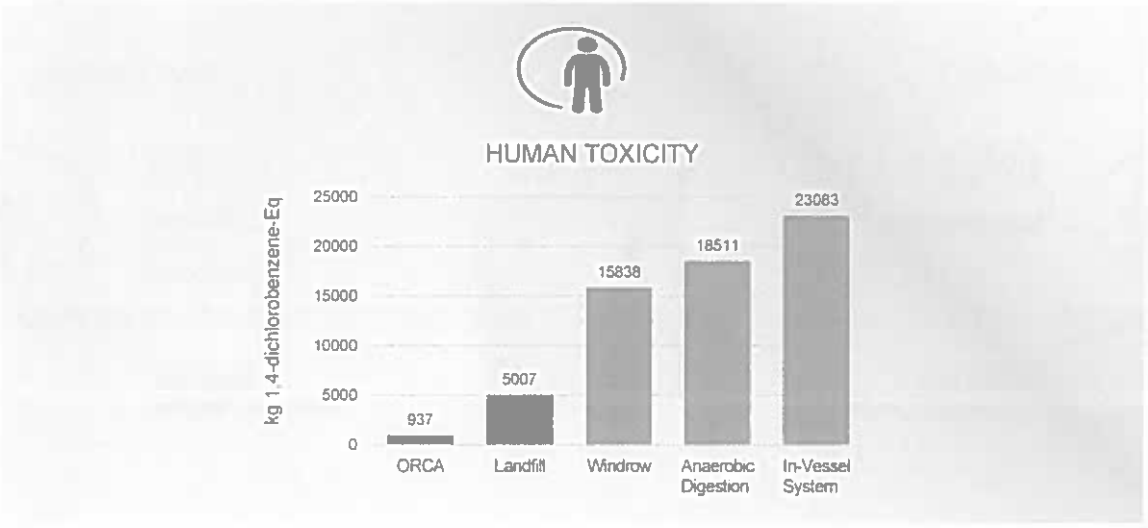
What does our LCA tell us?

- Truck transport is a significant contributor to the carbon emissions of alternative organic waste disposal
- Wastewater treatment plants are very efficient ways of recovering nutrients and energy from food waste
- The sewer system is an efficient existing infrastructure for the transport of food waste

LCA Results


CLIMATE CHANGE
kg C02-Eq
80000
70000
60000
50000
40000
30000
20000
10000
0
3099
3688
4414
11854
69644
ORCA
Anaerobic Digestion
In-Vessel System
Windrow
Landfill

LCA Results



ORCA

The Facts

OUR PLANET

65x
Better than landfill

25x
Better than anaerobic digestion

YOUR HEALTH

35x
Better than in-vessel composting

10x
Better than windrow composting

ORCA

"Before installing the ORCA, our staff lifted heavy garbage bags from our kitchen up a flight of stairs. With our organics diverted to ORCA, the weight of our garbage bags has significantly decreased. We can now reduce staff labor, avoid back injuries and increase team morale."

— David Garcelon, Executive Director of Food and Beverage, Waldorf Astoria New York

ORCA

ORCA Models

OG15

- Average of 15 lbs per hour
- 32" L x 23" D x 42.5" H
- 0.43 kWh
- 30 gallons of water per day

OG25

- Average of 25 lbs per hour
- 50" L x 33.5" D x 49" H
- 0.70 kWh
- 50 gallons of water per day

OG50

- Average of 50 lbs per hour
- 68.5" L x 33.5" D x 49" H
- 0.70 kWh
- 100 gallons of water per day

OG100

- Average of 100 lbs per hour
- 115" L x 33.5" D x 49" H
- 1.20 kWh
- 150 gallons of water per day

ORCA

ORCA Portal

- Accurate real-time data
- Customized reporting
- Calculated environmental impact

ORCA

Why ORCA?

CLEANER

- Eliminates the transportation of food waste
- Eliminates methane pollution and significantly reduces greenhouse gas emissions
- Recycles food waste into a renewable resource
- Accurately contributes to corporate diversion targets

MORE EFFICIENT

- Improved workflow for greater operational efficiency
- Accurate diversion reporting
- No solids generated that require additional handling
- Minimizes odors and pests

LESS EXPENSIVE

- Lower EH&S costs
- Waste law compliance
- Fixed 5 years pricing
- Reduced janitorial supply costs such as garbage bags, bins
- Lower hauling costs

ORCA Service Program

ORCA technology is available under two flexible programs:
Technology as a Service (TaaS) or Purchased with Service. The program includes:

ORCA

ORCA Remote Service Program

ORCA

Employee shifts are easier – they put food waste into the system and it [ORCA] takes care of the rest. It improves the workflow of organics collection."

— Pierre Sader, Facilities Manager, IKEA Canada

ORCA

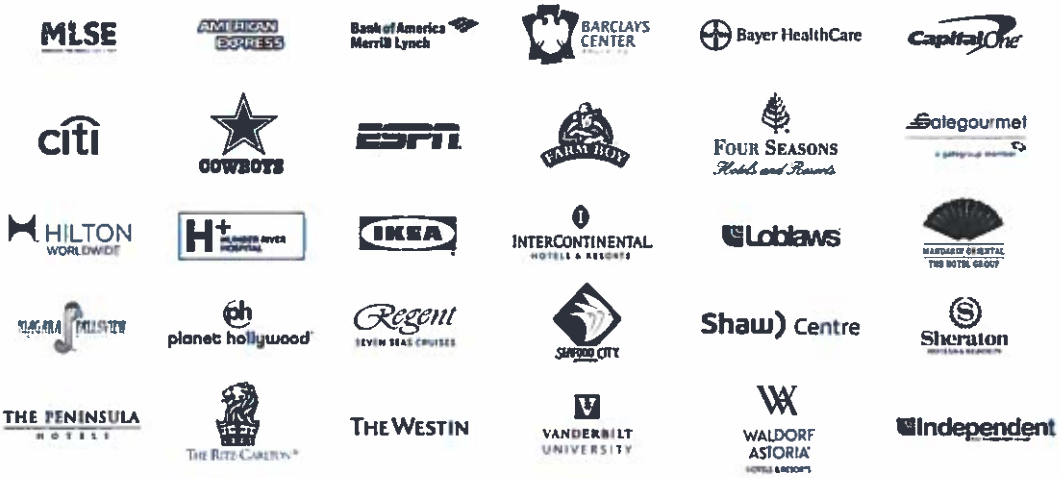
Simple Installation

ORCA

Competitive Advantages

+ Low Water Usage
+ Cold Water Only
+ Lowest Power consumption – standard wall outlet
+ Food Waste Transportation Equipment Provided
+ Maintenance and Repairs Support Included
+ Large Feed Door
+ Onboard Scales Standard Equipment
+ Flexible finance options
+ All-inclusive plan
+ Complete Manufacturing in North America

Our Customers



ORCA

"ORCA has provided a great customer experience from upper management to the service technicians. There is much less odor at the loading dock from the compactor and it reduced my trash weight and then number of pickups."

— Fred Kolek, Director of Property Operations, Area Northeast Region, Hilton Worldwide

ORCA

Summary

CLEAN

- ORCA has significantly lower carbon emissions, freshwater eco-toxicity and human toxicity than landfill and other food waste disposal options.
- Process allows for high value renewable fuels and natural fertilizers to be economically produced and recovered.
- Considerable emission offset by removing truck transport from the process.

SCALABLE

- Waste companies are not scalable; need more trucks, space and transfer stations
- We provide a uniform solution that can be implemented across multiple locations
- Wastewater treatment plants are an efficient way of recovering nutrients and energy, while recycling water content from effluent (75%)

EFFICIENT

- Food waste is most efficiently recycled at its source.
- ORCA relies on existing infrastructure to transport food waste to wastewater treatment plants.
- Distributed, hyperlocal technology

ORCA

Thank you

feedtheorca.com

ORCA

WPM Green Energy

RESEARCH PURPOSE

WPM Green Energy wish to undertake applied scientific research in Ireland to determine the environmental and economic impacts of the food waste technology known as Orca.

RESEARCH QUESTIONS

WPM Green Energy wish to understand;

1) What is the carbon footprint reduction to the environment of using Orca (v Brown Bin collection/disposal)?
   - What diesel fuel is prevented by using Orca?
2) What levels of methane are prevented by using Orca (v Brown Bin collection/disposal)?
3) What food waste does Orca 'digest' best?
   - Would altering the Microorganisms alter the output?
   - Are there any unique impacts of the Irish environment on Orca's performance?
4) What nutrients are produced by Orca as an effluent output?
   - Are there any re-use applications for this output?
5) What is the level of water quality produced from Orca?
   - What is the level of toxicity? Acidification? Etc.
6) What is the Return on Investment of using Orca?
   - What are the operating costs (Electricity & Water) of using Orca in Ireland?

RESEARCH SCOPE

WPM Green Energy would expect that this research would be undertaken;

- on the Orca device in situ at CIT
- over the course of 4-6 weeks
- focusing on the disposal of food waste & not the creation/prevention of food waste
- through Enterprise Ireland's Innovation Voucher or Innovation Partnership programs

RESEARCH OUTCOMES

Published: 10th June 2019

Professional report produced on the back of thorough research, delineating the positive and/or negative environmental and economical impacts of the Orca device for Irish food waste producers, so as to determine if Orca is the most "environmentally friendly" method of disposing of food waste?