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Introduction to StormFisher  
LA County ATAS Meeting  
May 2021

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# Agenda

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- StormFisher's Background
- Organic Waste-to-Value
- Projects in Development
- Assessment of Key Project Aspects

## StormFisher Background

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- StormFisher develops and operates facilities that recycle food, waste, energy, and water in an environmentally and economically sustainable manner
- Cleantech projects developed by the StormFisher team include recycled plastics to waxes and fuels (with GreenMantra Technologies), organic waste anaerobic digestion (AD), and biogas upgrading to renewable natural gas (RNG)
- We have over 10 years of plant operating experience across 7 different facilities; we currently operate the largest private organic waste-to-energy biogas facility in North America
- With a team of more than 30, including engineers, sales, finance and operators, StormFisher can support all areas of development and operations
- StormFisher takes a technology-agnostic approach to project development, selecting the optimal design for each unique project



# StormFisher Leadership Team

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**Brandon Moffatt**  
Vice President, Development

Brandon is an industry thought leader with extensive technical and development experience in the environmental, waste and renewable energy sectors. He has experience developing regulatory and industry policy. He has led project development, engineering design, and technical support of complex organics processing and anaerobic digestion sites.



**Pearce Fallis**  
Vice President, Operations

Pearce has the unique ability to manage both the commercial and technical aspects of facility operation. Prior to StormFisher, Pearce led the development of the operations strategy for one of the larger solar rooftop portfolio companies in Ontario. At StormFisher, he has been instrumental in leading operational growth.



**Chris Guillon**  
Vice President, Finance

Chris has extensive experience in the commercialization and financing of innovative clean technologies. Chris co-founded StormFisher, where he has spearheaded the financing and sales activities of the company. Chris has in-depth experience in securing venture capital, project financing, term debt, and non dilutive grants



# StormFisher's London Biogas Facility

- The London biogas facility is located in London, Ontario, Canada
- The plant generates both renewable electricity and heat (8 MW eq.) and renewable natural gas (225,00 GJs per year)
- The digested organics are then used to produce organic based fertilizers
- The facility services more than 30 customers including national and multinational brands and processes over 100,000 tonnes per year of organic waste



Aerial of StormFisher's London Biogas Facility



Biogas Upgrading System at the London Facility

# StormFisher's Drumbo Resource Recovery Centre

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- The Drumbo Resource Recovery Centre is located in Drumbo, Ontario
- The facility receives and processes up to 100,000 tonnes per year (tpy) of municipal source separated organics and industrial/commercial packaged food waste to supply anaerobic digesters
- The facility started up in December 2020 and is currently at over 60% capacity
- The facility can supply Engineered Organic Feedstock (“EOF”) to both StormFisher-operated and third-party digesters to produce renewable electricity and RNG



Drumbo Resource Recovery Centre

## Finance Partner: Generate Capital

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GENERATE CAPITAL

- StormFisher often works with Generate Capital as a finance partner
- Generate is a leading owner and operator of middle market energy infrastructure that builds, owns, operates, and finances infrastructure assets involving the world's critical resources: energy, water, agriculture, and basic materials
- Generate is based on San Francisco raised \$1 Billion in 2020 to fund new projects (see news article: [Link](#))
- Generate owns both the London Biogas Facility and the Drumbo Resource Recovery Centre; StormFisher serves as the developer and operator of the projects

# StormFisher's New Co-Mingled Organics Management Facility

- StormFisher designed a high solids anaerobic digestion and composting facility for processing co-mingled municipal organic waste
- Facility is designed to process ~100,000 tons per year of co-mingled SSO (leaf & yard waste plus food waste) and generate over 225,000 MMBtu per year of pipeline-quality RNG

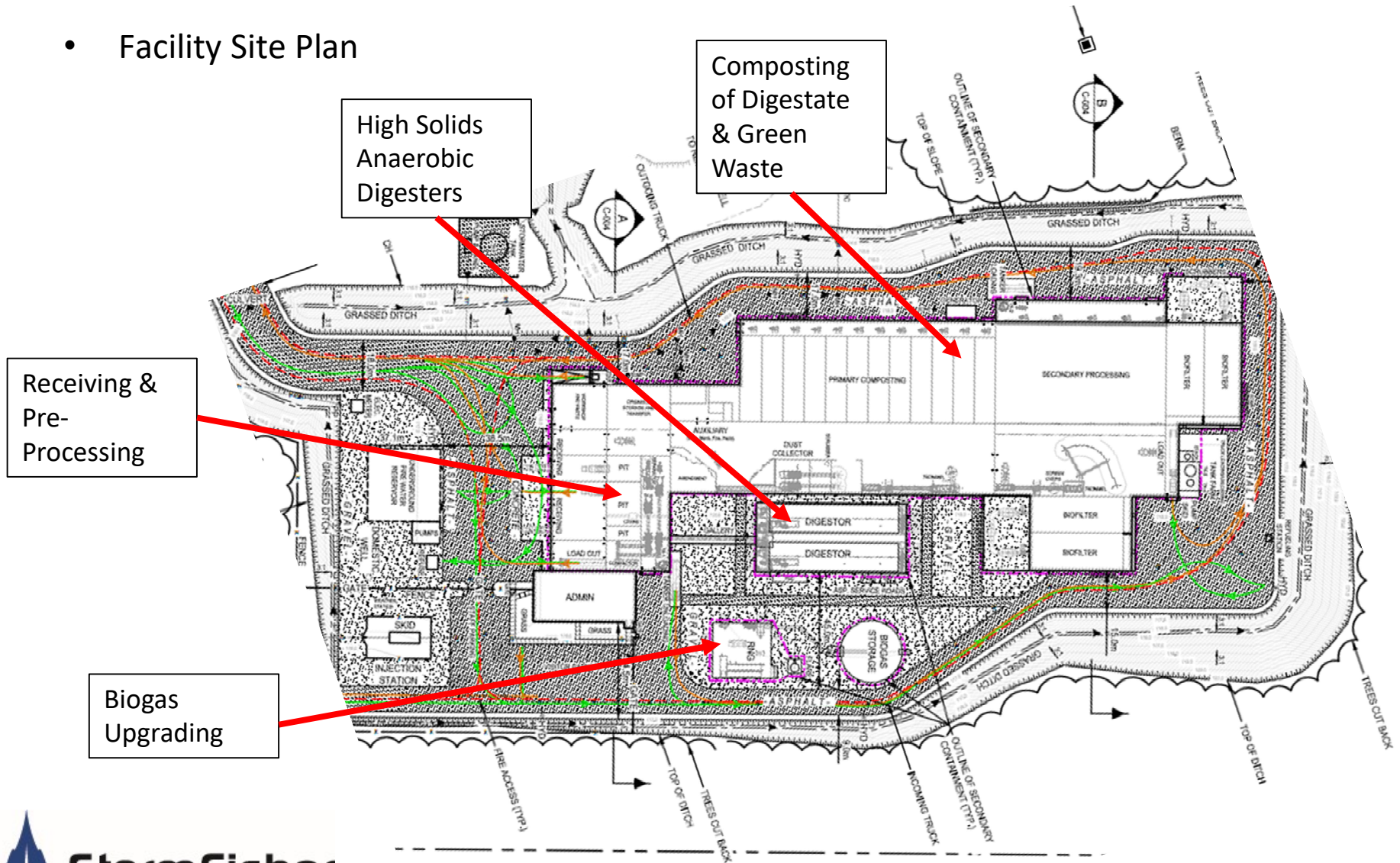


Renders of StormFisher's High Solids Anaerobic Digestion facility for co-mingled SSO



# StormFisher's New Co-Mingled Organics Management Facility

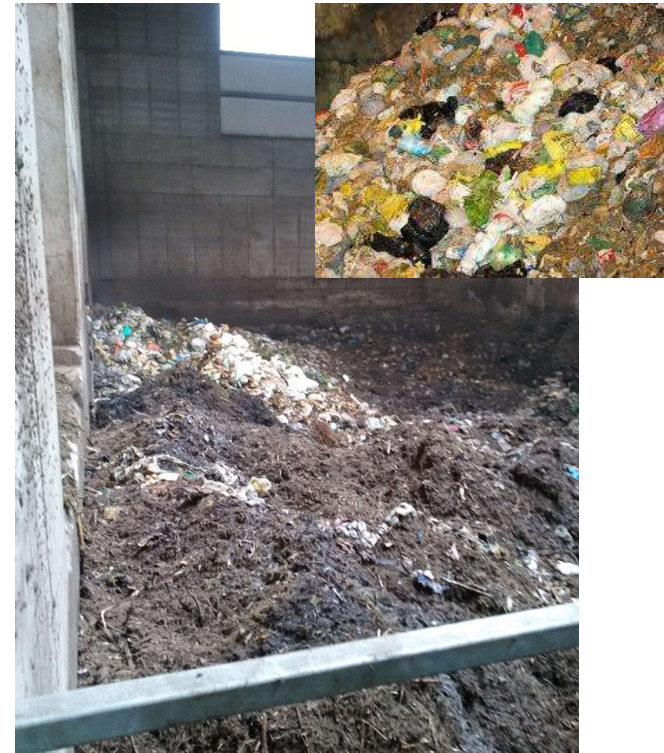
- Facility Site Plan



# Assessment of Key Project Aspects - Feedstock

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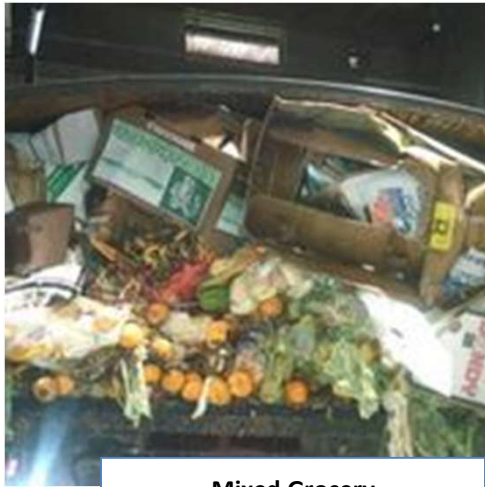
- Feedstock will be the ultimate driver in many design, development and commercial contracting decisions
- Given the long lead time to developing and constructing organics processing infrastructure, clarity on feedstock and contractual obligations needs to be flushed out which includes, but is not limited to;
  - Quality at delivery
  - Ramp up schedule
  - Contract type – put or pay, exclusivity, etc..
  - Specifications
  - Maximum and minimum volumes
  - Delivery method (type of truck, frequency, load out method, etc.)
  - Other organics that can be addressed



# Types of Organic Waste Streams



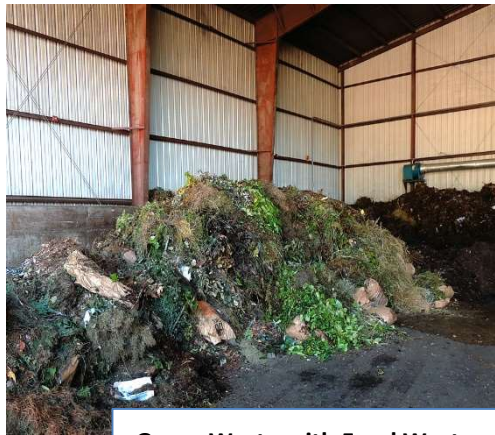
Tote Swap Program



Mixed Grocery



Packaged Goods (Skids)



Green Waste with Food Waste



Liquids



Source Separated Organics

# Anaerobic Digestion Process Types



# Composting Process Types



# Assessment of Key Project Aspects - Siting

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- Siting of organics processing facilities can occur on one of the following locations:
  - Landfills
  - Transfer Stations
  - Material Recovery Facilities
  - Wastewater Treatment Plants
  - Refineries
  - Greenfield/Brownfields
- In order to site an organics processing facility, it will need access to the following:
  - Heaviest Industrial Zoning
  - 5-10+ acres
  - Water & Sanitary Sewer
  - Utilities (electricity, and natural gas a nice to have)
  - Truck traffic – current and expandable
- Zoning/Local Engagement
  - Still a challenge due to NIMBYism

# Assessment of Key Project Aspects – Energy Offtake

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- Biogas can be utilized in two main ways:
  - Electricity Production
  - Renewable Natural Gas (RNG)/Compressed Natural Gas (CNG)
- RNG can either be injected into gas pipelines, compressed for vehicle fuel on site, or utilized on-site in the right application (refineries). This is the most promising outlet for biogas in the future.



# Assessment of Key Project Aspects - Digestate Management

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- AD facilities produce a large amount of high-strength liquid that requires wastewater treatment before discharge or must be stored and land applied. Typically more than 10M gallons per year, per facility is produced
- This material poses nutrient loading concerns to wastewater plants who may be limited on the amount of nutrients (typically nitrogen and phosphorous) they are allowed to discharge. They may require large fees to treat liquids
- In the case of land application, need to address the costs for transport, storage as well as focus on the nutrients and salts that are going to need to be addressed
- We can deploy technologies to remove phosphorous and nitrogen from our wastewater to lessen our impact on wastewater plants or land application however it requires additional costs
- Post-digestion material can be processed in various ways to create marketable end product (typically solid/liquid separation). There are two basic options:
  - Compost
  - Fertilizer
- Fertilizer can be produced more easily on an urban site but requires large amount of heat (exhaust heat from engines)
- Compost requires larger footprint and amendment with green waste to ensure proper C:N ratios
- Both products have a use in the agricultural and consumer markets; however contamination on the inbound material needs to be addressed and the impact of OMRI requirements for some customers causes concerns



# Assessment of Key Project Aspects - Permitting

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- WWTPs/Landfills
  - No Use permit
  - Still will likely have to run CEQA
  - Waste permit may be eliminated
  - Integrated water permit
  - Air permit – any new equipment and be careful not to open any Title V permits
- On-site at Refineries
  - Still will likely have to run CEQA
  - Integrated water permit
  - Air and waste permits can run in parallel
- Greenfields/Transfer Stations/MRFs
  - Permitting pathways established
  - Timeframes longer for land use/CEQA
  - Waste permit after CEQA
  - Air and water can run concurrently with waste permitting

## Contact Information

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