



Anaergia DB, Inc  
 4210 South Service Road  
 Burlington, Ontario  
 L7L 4X5, Canada  
 +1.905.766.3333  
 www.anaergia.com

June 21, 2021

Attn: Ron Starr  
 Ward 6 Councillor, Region of Peel  
 Mississauga Civic Centre  
 300 City Centre Drive  
 Mississauga, ON L5B 3C1

**RECEIVED**

June 22, 2021

REGION OF PEEL  
 OFFICE OF THE REGIONAL CLERK

**Re: Unsolicited Proposal Regarding a Proven Alternative Approach for an Organic Waste Diversion Solution to Replace the \$124 Million Capital Expense and Minimize Risk for the Region of Peel**

The Region of Peel has long been a North American leader in Organic Waste diversion and recycling. The current program has successfully diverted 60k tons/year from households and businesses since the program’s expansion into full scale nearly 15 years ago. Increasing population and more aggressive diversion goals have provided impetus for additional organics processing capacity in the Region with higher technical ability to remove contaminants such as glass and plastic, as well as production of Renewable Natural Gas via Anaerobic Digestion (AD). Through a 4-year development process, Peel has proceeded to procure its own integrated digestion, RNG and digestate processing facility at Orenda Road in Brampton<sup>1</sup>. The \$124M digester will replace the existing in-vessel composting facility originally built in 2007. The primary driver to construct the AD facility is the need to increase the total waste diversion rate above 70%, and the AD will allow recycling of pet waste and diapers via pre-processing technology.<sup>2</sup> Pre-processing and contaminant removal enables the best and highest use of resulting digestate and maximizes the potential to return organic matter and nutrients to our agricultural soils.

Anaerobic Digestion is the right solution for recycling organic matter with a minimum potential for off-site odors and maximum greenhouse gas benefit via production of RNG. However, as Peel prepares to award a contract to build and operate its new AD facility, there are serious concerns about the costs involved that justify further review in light of alternative, cost-effective models.

REFERRAL TO Corporate Services  
 RECOMMENDED \_\_\_\_\_  
 DIRECTION REQUIRED \_\_\_\_\_  
 RECEIPT RECOMMENDED \_\_\_\_\_

<sup>1</sup> <https://www.caledonenterprise.com/news-story/10403616-explainer-peel-region-is-going-to-be-turning-its-compost-into-natural-gas-and-fertilizer-here-s-how/>

<sup>2</sup> <https://www.peelregion.ca/council/agendas/2019/2019-02-07-wmsac-agenda.pdf>

*There are better ways for cities to handle SSO disposal than investing taxpayer money in a greenfield, standalone facility with inflexible operating parameters. The Region can implement a long-term, sustainable alternative to the proposed DB approach while retaining the ability to process all of the Region's SSO and recover renewable energy. These alternatives include implementing a P3 project approach and leveraging existing infrastructure, with the following objectives:*

- ✓ *Long-term financial gain for the Region by minimizing capital and operational costs*
- ✓ *Reaching environmental objectives with a dedicated SSO facility, including a waste diversion rate above 70% and the production of renewable energy*
- ✓ *Minimizing technology risk while expanding opportunities to process mixed solid waste alongside SSO*

*The result is a high-quality organics management program that focuses on positive social, environmental, and economic impacts.*

#### **Peel AD plant total cost:**

The capital expense of the digestion facility is expected to be \$124M, at a low cost of money (3% over 20 years) that annual expense would be >\$8M/year or \$118/ton on 70,000 tons. The cost of operation is expected to be \$160/ton, meaning the full cost of AD via direct DBOM by Peel will approach **\$280/ton**. Compared with current processing costs of SSO via composting in Peel today of \$110-130/ton.

Why is the Peel AD project estimate so expensive? One primary reason could be that the Peel AD project achieves processing reliability through costly redundancy of equipment trains on-site. The "N-1" capacity of the Peel AD project is slated at 5,800tons/week in the original RFQ, or 140,000 tons per year. This means the plant would have a peak capacity of 280,000 tons/year or 4x the current volumes of SSO in Peel. Another reason the Peel AD facility is so pricey: it consists of 100% new infrastructure. Greenfield construction is expensive; much of the cost of Peel's new AD won't be for actual digester equipment; it will be for truck scales, odor control, wastewater processing, offices, parking and so on. In comparison, use of existing WWTP digesters for food waste recycling re-uses the digester AND many balance-of-plant requirements also present at the WWTP.

Here are a few contrasting examples of successful organics diversion programs that achieve redundancy, leverage existing infrastructure, and keep costs low.

### **York Region Organics Processing:**

The Region of York is taking a different approach to its AD procurement – relying on a diversity of private AD sites to process source-separated organics. The RFP is for 70,000-140,000 tons/year of organics with up to 25% contamination or non-digestible fraction. One or two pre-treatment facilities will remove contaminants from the SSO and the resulting clean feedstock will be delivered to multiple digester facilities throughout the region. York will achieve redundancy and reliable operation through diversity of outlets at competitive pricing. Total processing cost including pre-treatment and contaminant removal, transportation to ADs and digestate recycling is expected to cost between \$90-130/ton total with minimal capital commitment required by York. Existing infrastructure is leveraged to the greatest extent where current transfer stations, on-farm and dedicated digester facilities will be utilized.

### **Co-digestion at WWTPs:**

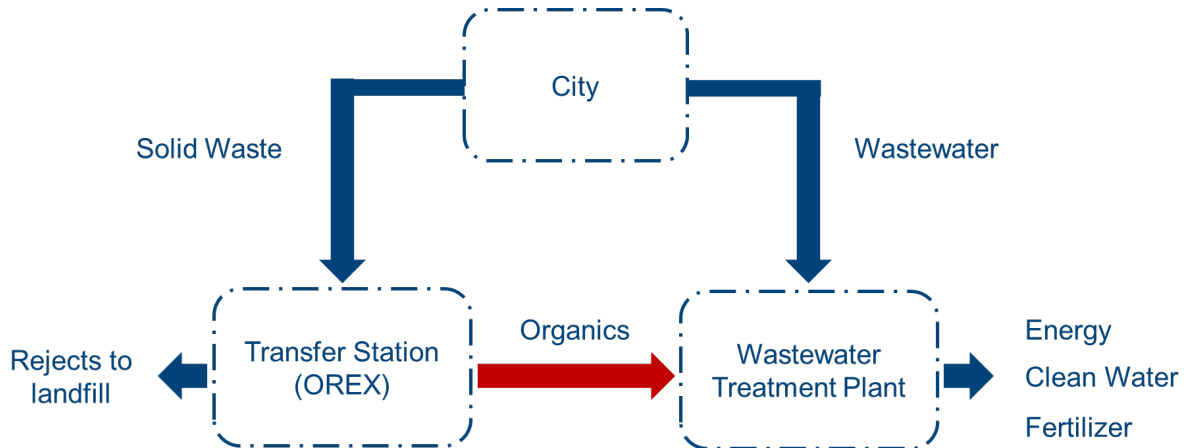
California is one of the most aggressive N. American states/regions implementing organics diversion at scale. California’s SB 1383 will require full diversion of >75% of all organic waste from landfill by 2025. To achieve this goal, a variety of approaches are being pursued by various Waste Management Authorities; and one of the most cost-effective, secure and fastest to implement is pre-treatment of SSO and even MSW at transfer stations, with the organic content being recycled at existing wastewater treatment digesters via co-digestion or mono-digestion. A recent detailed review of WWTP capacity for organics found existing WWTP anaerobic digesters could accommodate (with some relatively minor improvements) between 3.3-4.5 Million Tons per year of food waste, or up to 60% of the amount currently disposed. Evaluating additional capital and operating costs at the digesters, the report found that revenue from gas sales would exceed total costs of processing clean food waste.<sup>3</sup> Therefore, the majority of costs for the entire organic waste recovery system would be in pre-processing and contaminant disposal.

South Bayside Waste Management Authority (SBWMA) implemented Anaergia’s OREX and OPS system at their transfer station to recover the organic fraction of MSW. The resulting slurry is directed to 5 regional wastewater treatment digesters for full digestion, recycling and landfill diversion of organics. Annual organics volumes recycled at full plant capacity are 75,000 tons/year and the tipping fee for SSO at SBWMA is ~\$100/ton.

*Anaergia has a successful track record in the development of partnerships with municipalities and wastewater authorities to develop solutions for the diversion of organics, renewable energy production, and the beneficial use of end-products.*

<sup>3</sup>[https://www.waterboards.ca.gov/water\\_issues/programs/climate/docs/co\\_digestion/final\\_co\\_digestion\\_capacity\\_in\\_california\\_report\\_only.pdf](https://www.waterboards.ca.gov/water_issues/programs/climate/docs/co_digestion/final_co_digestion_capacity_in_california_report_only.pdf)

**The SBWMA model:**



We thank you for providing Anaergia the opportunity to present this letter to the Region of Peel. We trust the foregoing will be of interest to you and if you have any questions with respect to the information contained herein, please do not hesitate to contact the undersigned.

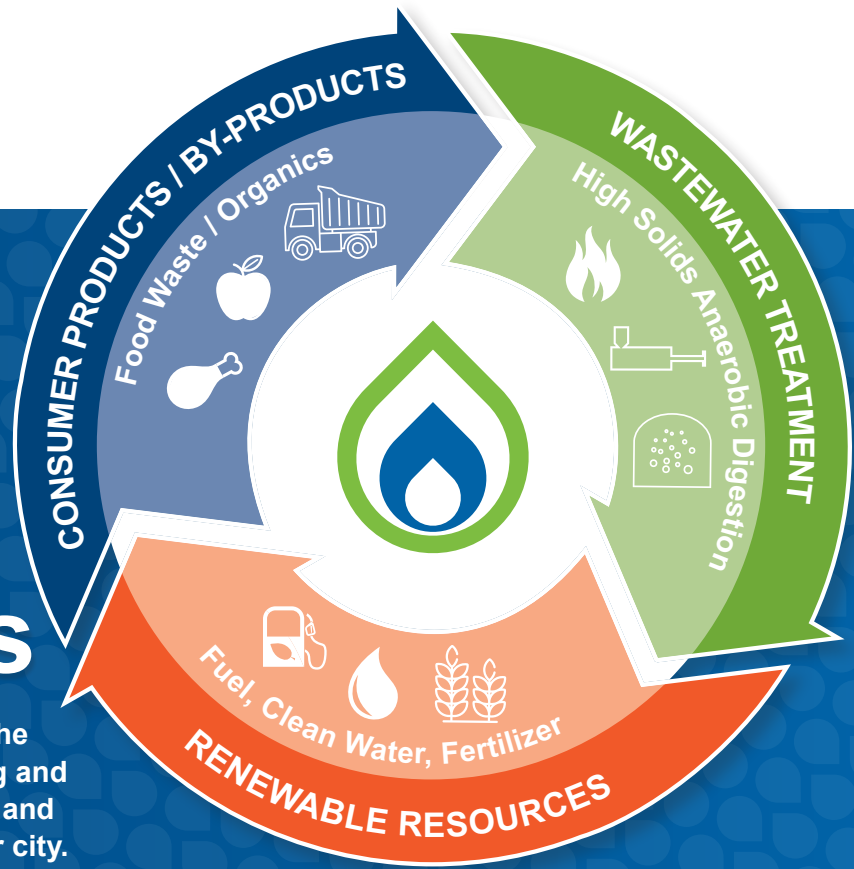
Yours very truly,



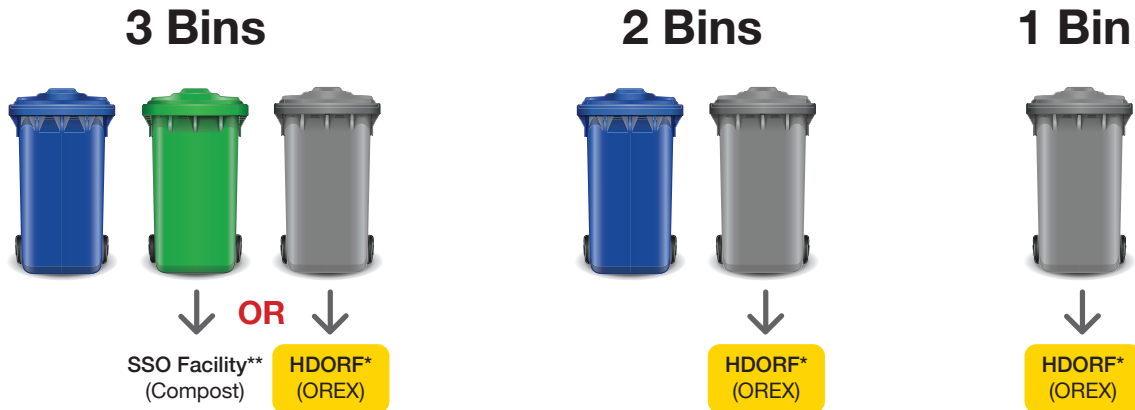
Jim Nardi  
 Anaergia DB Inc.  
 Senior Consultant  
 jim.nardi@anaergia.com  
 416.312.8578  
 4210 South Service Rd, Burlington, Ontario, L7L 4X5  
 Canada  
[www.anaergia.com](http://www.anaergia.com)

# SB 1383 Compliance Options and Opportunities

Anaergia can provide a roadmap to achieving the 75% organics diversion goal by 2025, collecting and separating organics from landfill-bound waste, and transforming it into valuable resources for your city.



## Waste Collection and Handling Options



\* High Diversion Organics Recovery Facility, 75% organics diversion

\*\* SSO Facility must have <10% organics in rejects and <10% rejects in organics

### OREX™

- Maximizes Recovery of Wet Organics from Municipal Solid Waste
- Lowest Cost Organics Diversion from Landfill: No Source Separation Required
- Feedstock Versatility: Handles a Variety of Waste Streams

### Omnivore™

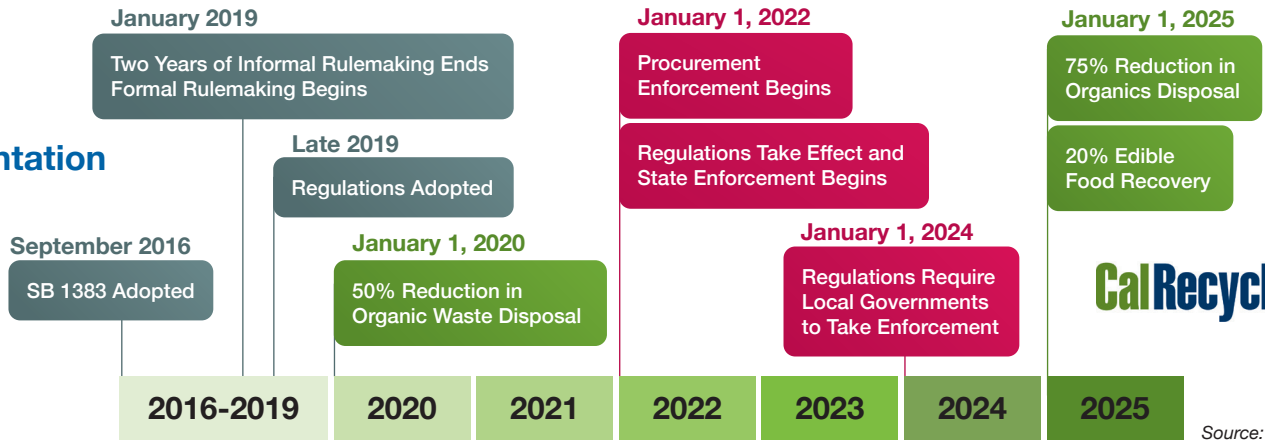
- 3x Existing Digestion Capacity in the Same Footprint
- Limited Footprint for New Digesters
- Reduced Capex and Lifecycle Costs
- Easy Operation and Maintenance
- Enhanced Biogas Production

### Engineering and Design Service

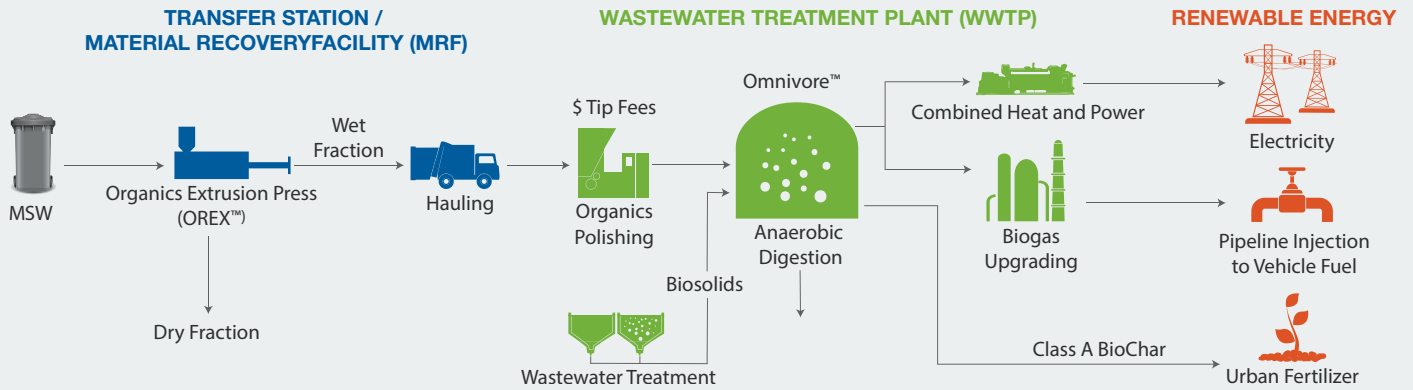
- Anaergia has over 20 years of experience innovating and delivering successful resource recovery solutions on projects throughout the world.
- Anaergia has experience and a successful track record with alternative delivery models such as DB, DBO, DBFOO and PPAs.



# SB 1383 Implementation Timeline



Source: CalRecycle



## Anaergia Success Stories



### South Bayside Waste Management Authority OREX (San Carlos, CA)

- Processing MSW and contaminated SSO
- Organic fraction diverted to multiple wastewater treatment plants for co-digestion



### Waste Management OREX (Sun Valley, CA)

- 50 ton per hour OREX line processing MSW and contaminated SSO
- Organic fraction diverted to Anaergia's Rialto Bioenergy Facility for conversion to RNG



### Dufferin Organics Processing Facility OREX (Toronto, Canada)

- Processing >200 ton per day of residential SSO to RNG
- Servicing half of the City of Toronto's residential SSO
- Operated by Anaergia



### Rialto Bioenergy Facility (Rialto, CA)

- 1,000 tons per day of organic waste and biosolids to renewable natural gas and biochar
- Designed, Built, Owned, Operated, Financed by Anaergia



### Escondido Hale Avenue Resource Recovery Facility (Escondido, CA)

- Biogas to 1.2 MW power under 20-year PPA
- Designed, Built, Owned, Operated, Financed by Anaergia



### Sterling Natural Resource Center (Highland, CA)

- 8 MGD wastewater to water reuse with Anaergia's Fibrecast membrane
- 130k gallons per day of imported organic waste to 3 MW power