Service Proposal:
Township of Huron-Kinloss

Expanded Polystyrene Recycling Service

Delivered by:

Second Wind Recycling

October, 2020

Background

Expanded Polystyrene (EPS), commonly referred to as Styrofoam, is abundantly used in packaging and food service products. The petroleum based material is composed of 95% air and is not biodegradable. Due to its fragility and low weight, it is a common pollutant in the natural environment. The material has become even more prevalent with the advent of e-commerce and bulk shipping.

Though both high in the public conscience of environmentally damaging waste, and industrial demand for recycled product, EPS still has a very low recycling rate in Canada, especially from post-consumer generation. Landfill avoidance is a goal of many municipalities, but the common tonnage metric used for diversion efforts fails to recognize the nature of light weight, high volume EPS packaging. Additionally, most recycling companies are focussed on more lucrative and less problematic recycling materials. To be received by recyclers, EPS must be densified and meet minimum quantities and tight composition specifications. As a result, a large contributor to landfill volumes is left unaddressed by most regions.

Second Wind Recycling Vision

Second Wind Recycling is founded on the road to a circular economy and a zero-waste society. Recent legislation proposes to inspire less and more eco-friendly packaging materials by shifting end-life responsibility entirely to the producer association of Stewardship Ontario. This will be a long road to meaningful reductions in packaging waste, as materials, particularly EPS, remain inexpensive to produce. Recovery will therefore continue to be the major avenue of diversion efforts for a long foreseeable future, regardless of who the responsibility falls to.
With a lean and targeted business model, Second Wind Recycling strives to recover and commoditize challenging materials that are commonly treated as waste, with a primary target being EPS.

Throughout most of Ontario, EPS recycling has been a low municipal priority compared to other recyclables that have less barriers to effective recovery. Second Wind Recycling's specialization and mobile densification process allows it to serve multiple municipalities and private generators, achieving the volumes required for feasibility and offering a price point that makes recycling both environmentally and economically attractive. Partnering with the Continuous Improvement Fund (CIF), Second Wind is currently servicing six South-Western Ontario municipalities in one year pilot projects to model the viability of this approach to post-consumer, depot-drop, EPS diversion.

Process Overview

Second Wind Recycling provides the municipality with a densifying and removal service of all post-consumer packaging EPS delivered to the recycling depot, and ensures it is recycled by a registered recycler. A one year pilot project will allow both parties to assess the cost-benefit balance and identify best practices, with a goal of long-term implementation.

Second Wind Recycling is currently partnered with the Continuous Improvement Fund (CIF) in studying the multi-municipality, mobile densification, approach to EPS diversion.

Municipal Responsibilities

- Establish a practical collection point at the depot/transfer station/landfill where collection bags are available for public EPS drop off.
- Provide staff monitoring of the public EPS drop off.
- Loose tie full collection bags when full and move them to a covered storage structure. Space does not need to be heated, but dry and unexposed to direct sunlight.
    - The space will have a footprint of at least 300 square feet.
    - A 40' C-Can shipping container is ideal and is available for $2,700 plus delivery.

(The collection point can be in the storage structure, provided staff monitoring is still possible.)

- Promote public awareness of the project.
- Retain any materials found in collections bags that do not meet the defined specifications (see appendix A)
- Provide after hours access to the depot/transfer station/landfill to Second Wind Recycling.
- Sign off on collection data gathered with each visit (for the duration of the CIF study).
- Pay Second Wind Recycling monthly instalments of the agreed contract.

Second Wind Recycling Responsibilities

- Provide a monthly service visit. (Or a longer interval should the storage capacity and collection rate allow).
- Densify EPS onsite, within a self-powered trailer unit.
- Remove densified EPS from the site each visit.
- Provide collection bags (to be re-used as long as possible).
- Deliver and install promotional and specification signage.
- Be responsible for all collected EPS meeting specifications regardless of available recyclers and market price.
- Provide an annual diversion report.

Other Factors to Consider

- Half of operational costs can be funded by Blue Box Ontario.
- If a transfer station is part of the residential waste process, diverting EPS has the potential to reduce the hauling costs to landfill by reducing the number of truckloads required.
- "Not only does diversion extend landfill life, there is considerable financial incentive for a landfill operator because the required space for EPS can be used for 3 times the amount of garbage and associated tip fees". (CIF Project #130)
- Recycling 1 tonne of EPS a year represents an energy savings equivalent to that used by 1.25 homes.

Annual Flat-Rate Service Quote

- **$ 3,800 + HST**

  Includes unlimited post-consumer, residential EPS collected and stored at agreed upon depot/transfer station/landfill.

  Dose not include large and/or regular industrial, commercial, or institutional EPS. The municipality will disclose any collection from such sources to Second Wind Recycling. Direct servicing of these sources is possible, or an additional fee to the municipality can be negotiated.

Owner: Dane Rice

St. Thomas ON.

519-494-4984

info@secondwindrecycling.com

www.secondwindrecycling.com

Appendix A: EPS Depot Specifications

Accepted

White, Rigid, Expanded Polystyrene Packaging commonly from:

- Computers
- Electronics (*cameras, TVs, DVD players, etc.*)
- Appliances (*toasters, blenders, coffee makers, etc.*)
- Lighting and fans
- Tools
- Toys

Not Accepted

- Take-out containers
- Meat trays
- Coffee cups
- Disposable dishware
- Packing peanuts / popcorn
- Construction insulation, blue and pink
- Polyethylene and Polypropylene packaging
- Foam bags & wrapping
- Hot tub cover inserts
- Pool noodles

Requirements

- Remove all tape, plastic, stickers, cardboard and other contaminants attached to foam.
- Ensure material is clean and dry.

Appendix B: Barriers to recycling post-consumer EPS & Second Wind Recycling Solutions:

Barrier:
It is not cost effective to transport loose scrap EPS, and most recycling plants will not receive it in this form.
Solution:
Utilizing the mobile densification unit, up to two truckloads of loose EPS can be compressed to one pallet-sized load. Second Wind Recycling's service is both material removal and the pre-processing required to access the recycling market.

Barrier:
A large volume of EPS collection is required to justify investments in densification equipment. Most municipalities and private companies won't reach this volume of EPS in isolation.
Solution:
Second Wind Recycling will service multiple Municipalities and Industrial, Commercial & Intuitional clients, collecting the critical volume required for feasibility, and minimizing downtime of the required equipment.

Barrier:
Recycling markets for collected EPS have traditionally been unreliable. Compared to other recyclables, the return for collected material is low. Traditional receivers China and India, have banned imports of post-consumer plastics. Several Ontario municipalities who once collected EPS have ceased to do so.
Solution:
Second Wind Recycling has connected with multiple receivers and brokers, both domestic and international, who are paying a modest return for product meeting specification. Risk for a reliable outlet is transferred out of the municipality.

Barrier:
Due to it fragility, EPS is prone to breaking up and contaminating other recyclables when included in blue box programs. Sorting from other materials is also labour and capital intensive.
Solution:
Drop-off collection bags will receive EPS at the environmental depot. Capitalizing on the publics awareness of the problematic material, collection will only be done separate from other recyclables.

Barrier:
The voluminous, lightweight material, consumes a large storage footprint. EPS needs to be kept clean and dry to maintain a marketable recycling value.
Solution:
A 40 foot shipping container (or its equivalent), located at the municipal drop off depot will store the EPS collection bags. Second Wind Recycling will empty the bags as required.

Barrier:
Failure to meet recyclers specifications can result in entire truck loads of densified EPS being rejected by recyclers. Food or moisture, coloured foam, or other materials like tape and stickers can spoil entire loads and force it to be land filled.
Solution:
White packaging foam makes up the large majority of EPS by volume and meets receivers specifications. The speciation sign, municipal website and other marketing material will stress the required specifications of what is acceptable for drop-off. The covered storage structure will prevent exposure of the material to moisture and sunlight.

Barrier:
Proposed Extended Producer Responsibility (EPR) legislation will shift recycling responsibilities entirely to Stewardship Ontario. Uncertainty about how and when this transition will occur can make municipalities reluctant to adopt new practices or make new investments.
Solution:
By contracting the service to Second Wind Recycling, the municipality does not incur any capital costs up front or ongoing operational costs. A large volume of EPS can be diverted from landfill on a yearly basis, and there is no certainty of when and how responsibility will be shifted (particularly for EPS). Second Wind Recycling's densification equipment will have rollover potential for serving EPS scrap sources, how and when the new responsibility model is transitioned.

Barrier:
Due to its low weight, EPS diversion will not have a noticeable impact in terms of tonnage.
Solution:
Volume fills landfills, not tonnage. When recycling costs are examined with volume as the metric, this approach to EPS recovery is economical when compared to the average cost of collecting and processing other recyclables. When the value of landfill capacity is factored in, recovering EPS is even more practical.