Comox Strathcona Solid Waste Service

Waste to Energy assessment

Coast Waste Management Association Presentation
Thursday October 24, 2019
Increasing solid waste costs

Annual revenue - Comox Strathcona Waste Management
Introduction to the Comox Strathcona Waste Management Service

• Large geographically area
• Two regional districts
• Currently has 5 landfill sites
  • Moving to single landfill
• Solid Waste Management Plan – updated in 2011
• Waste to Energy assessment undertaken
• The five year effectiveness review – 2017
• Board desire to revisit Waste to Energy
Project Background

• Intent of the Request for Information
  • New options available to the service?
  • Is there a business case for a new option?
• Smoke stacks
• Looking for an advanced technology
• Relates to the Solid Waste Management Plan
• 70% diversion or a 350kg
• The WtE study – update for 2018
First draft submitted to the WtE Committee
  • Compared the cost of landfilling vs. technologies
  • Cost for landfilling was approximately $75/tonne
  • The technologies would add more cost to the service

The Committee needed additional information
  • Drop conventional combustion technology
  • Provide a full costing of solid waste services
Scope change – Draft 2

2\textsuperscript{nd} draft – direction of WtE Committee
  • Included all available waste
  • Focus on two technologies

Full system costs
  • $130/tonne & $6 million

Staff reviewed each component of the service
  • What drives the cost within service
  • Confirm results
Project Background

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- Relates to the Solid Waste Management Plan
- 70% diversion or a 350kg
- The WtE study – update for 2018
WTE Study Overview

• Accepted information packages from vendors
• Assessed three potential locations
• Updated residual waste mgt. system costs
  • Transfer stations, landfills, WTE
  • Capital, operations and transportation
  • Revenue – tipping fees and taxes
• Update GHG emissions estimates
Where does WTE fit in?

4th R - Recovery of energy and materials after the first 3Rs, prior to disposal
Assessed Technologies

- Eco Waste Solutions (EWS)
  - Conventional combustion
  - Numerous reference facilities
- Waste Treatment Technologies (WTT)
  - Gas through AD and compost
  - Numerous reference facilities
- Sustane Technologies Inc. (Sustane)
  - Proprietary de-bonding and separation, pyrolysis
  - One reference (Spain), 2018 project in Nova Scotia

*All are labour intensive operations*
Waste Flow – Status Quo

- **Yard & Garden and/or Kitchen Organics**
  - Composting Facility
    - Compost
    - Residuals
  - Source Separated Recyclables
    - MRF
      - Residuals
      - MARKET: Recyclables
  - Residual Mixed Waste

**MARKET: Compost**

**MARKET: Recyclables**

**LANDFILL DISPOSAL**

*Included in long-term modelling of disposal costs.*
Waste Flow – Sustane

Waste Generation

Yard & Garden and/or Kitchen Organics

Composting Facility

MARKET: Compost

Residuals

MRF

Source Separated Recyclables

MARKET: Recyclables

Recyclables

LANDFILL DISPOSAL

Residual Mixed Waste

Sustane

Pelletizing

Biopellets

MARKET: Energy/Fuel

Recyclables

Organics

Plastics

Pyrolysis

Synthetic Diesel

 Included in long-term modelling of disposal costs.
## Average Disposal Cost per Tonne

<table>
<thead>
<tr>
<th>Estimated average disposal cost per tonne</th>
<th>Option</th>
<th>Over 40 years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>Status Quo</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$75</td>
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<tr>
<td></td>
<td>1(a)</td>
<td>WTT in Comox Valley</td>
</tr>
<tr>
<td></td>
<td>3(a)</td>
<td>Sustane in Comox Valley</td>
</tr>
</tbody>
</table>
Summary of Total Disposal Cost

Total disposal cost in Comox Valley

- **Status Quo**
  - 30 years: $138
  - 40 years: $185
  - 50 years: $222

- **WTT**
  - 30 years: $303
  - 40 years: $399
  - 50 years: $510

- **Sustane**
  - 30 years: $215
  - 40 years: $263
  - 50 years: $309
CSWM – Full System Costs

Waste Disposal Costs (2018)

- Transport of Waste (between Comox Valley & Campbell River): $13
- Remote Communities: $34
- Other: $20
- Landfill Closure Costs: $29
- Recycling: $99
- Organics: Diversion
- Landfilling: $48
- Advanced Technologies: $86 - $111

Total Cost: $243 Tonne