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ERM 19-14

REPORT TO PARKS & ENVIRONMENT COMMITTEE
MEETING OF WEDNESDAY, FEBRUARY 27, 2019

SUBJECT **Organics Processing – Regional Capacity**

ISSUE

To provide an update on the results of the Organics Processing Request for Expressions of Interest (RFEOI) and to seek direction on processing technology and location for the development of a Request for Proposals (RFP) for a regional kitchen scraps processing facility.

BACKGROUND

The Capital Regional District (CRD) Board approved a motion directing that the *CRD pursue an in-region, or near in-region, organics (kitchen scraps/yard and garden) processing facility by initiating a new procurement process*. Staff subsequently released an RFEOI that was issued to assess the level of market interest in development of a regional kitchen scraps and organics residuals processing facility, to better understand proposed processing technology and preferred location for a facility.

A separate RFEOI for Salt Spring Island (SSI) was also issued to determine the potential of establishing a stand-alone facility for the island. A comprehensive review of the SSI submission was not conducted at this time. The expressions of interest will be shared with the CRD Senior Manager, Salt Spring Island Administration to help inform any potential SSI opportunities in the context of a comprehensive regional solution.

The RFEOIs closed on December 4, 2018 and a total of 13 submissions were received for the broader region and six for SSI. The consultant firm Morrison Hershfield Group was retained to assist with the review and evaluation of the submissions using an evaluation matrix of key criteria. The proposals received represent two processing technologies, composting and anaerobic digestion, as illustrated in the tables below.

Table 1: Summary of Request for Expressions of Interest Submissions

	Composting	Anaerobic Digestion	No Technology Proposed
RFEOI	6[1]	7[1]	1

[1] One proponent proposed both composting and Anaerobic Digestion. Each technology submission was considered separately.

The submissions were primarily focused on Hartland Landfill as the location for proposed facilities.

Table 2: Comparison of Primary Organics Processing Technologies Proposed

Technology aspect	Composting	Anaerobic Digestion
Proven technology	●	●
Environmental Benefits (GHG reduction)	○	◒
Energy recovery potential	◓	●
Flexibility to expand	◒	◓
Markets for expected products	○	●
Odour and leachate control	◓	○
Ability to receive different feedstock	◒	○
Capital costs	◒	◓
Operating costs (including revenues)	○	○
Space requirements	◓	○
Public perception	◓	◒

Ratings in the table above to be read as follows:

- ● Designates highest benefit or advantage
- ◒ Designates moderate benefit or advantage
- ○ Designates some advantages and some disadvantages, and a balance of benefits
- ◓ Designates low benefits and some disadvantages
- ● Designates least benefits and the most disadvantages

While capital costs of anaerobic digestion are substantially higher than composting, there are additional environmental benefits beyond what can be realized by composting. Irrespective of the type of submission, most proponents identified Hartland Landfill as the location for a processing facility.

The project development timeline for a regional organics processing facility is largely dependent on feedstock security, technology and location, with a small private sector composting proposal requiring a shorter timeline than a major public-private partnership anaerobic digestion facility at Hartland Landfill.

With the Board's declaration of a Climate Emergency and goal to achieve regional carbon neutrality by 2030, the technology that contributes the greatest toward the reduction of greenhouse gas emissions is anaerobic digestion. This technology offers further synergies and alignment with the Board's priorities when considered concurrent with the proposed renewable natural gas initiative, which is the subject of another report on this meeting's agenda.

Once there is clear direction from the Board as to the type of technology and preferred location, it is proposed that preferred proponents, selected from the RFEOI submissions, be invited to participate in a collaborative RFP process. The collaborative procurement process, that would include municipalities interested in providing residential kitchen scraps collection programs, would better inform the preferred proponent's RFP submissions and attempt to ensure the proposals best meet the needs of participating municipalities.

ALTERNATIVES

That the Parks & Environment Committee recommend to the CRD Board:

Alternative 1

1. That staff proceed with the next steps of the process for developing an anaerobic digestion facility at Hartland Landfill;
2. That this staff report be referred to the Solid Waste Advisory Committee for feedback on the recommendations and next steps; and
3. That staff return to the Board with the results of the next steps prior to proceeding with procurement.

Alternative 2

1. That staff proceed with the next steps of the process for developing a composting facility at Hartland Landfill;
2. That this staff report be referred to the Solid Waste Advisory Committee for feedback on recommendation and next steps; and
3. That staff return to the Board with the results of the next steps prior to proceeding with procurement.

Alternative 3

That the CRD continue to contract for organics processing from third-party facility operators in BC.

SOCIAL IMPLICATIONS

A Board decision to move forward with an anaerobic digestion facility at Hartland, and alignment of this project with the Board's Climate Emergency declaration, will be taken forward for a broad public education and consultation process to ensure a comprehensive understanding of any significant community concerns that might need to be mitigated during the construction and operation of a Hartland facility. Furthermore, a regional organics processing facility sited at Hartland is subject to a public consultation process under the provincial Solid Waste Management Plan requirements.

The CRD would also consult with municipal and private sector waste haulers to determine interest in dedicating kitchen scraps volumes to a regional processing facility. As a result of these requirements, substantial consultation will need to be completed prior to finalizing procurement for a regional anaerobic digestion organics processing facility.

Alternatively, the decision to develop a regional composting facility would require significant public

education to ensure any proposed facility is clearly differentiated from odour experiences with private facilities that have operated in the region and in neighbouring jurisdictions. A significant consultation process would likely be required to address concerns that would be raised.

ENVIRONMENTAL IMPLICATIONS

Kitchen scraps processing technology and facility location both have the potential to influence environmental impacts. Any in-region facility, regardless of technology, would be subject to various regulations and enactments, such as the BC Organic Matter Recycling Regulation and, in the case of a composting facility, the CRD composting bylaw. These regulations mandate environmental assessments and controls, including leachate, odour, vector, litter and dust management plans. Both anaerobic digestion and composting should be able to meet regulatory requirements for environmental management, provided they follow best practices for design, construction and operation.

The diversion of kitchen scraps from disposal at the landfill will result in environmental benefits, including landfill space savings, greenhouse gas reductions and resource recovery. Both anaerobic digestion and composting will produce nutrient-rich soil amendments, while anaerobic digestion alone will produce biogas that can be utilized to displace the use of fossil fuels. These implications will be more fully determined by the results of the RFP process.

Kitchen scraps processing by anaerobic digestion best supports the Board's objective to achieve regional carbon neutrality by 2030 and the production of renewable energy from waste in response to the Climate Emergency Declaration. Anaerobic digestion results in the creation of biogas, which can be upgraded into renewable natural gas. A separate report regarding the development of a renewable natural gas (RNG) facility at Hartland is on this meeting's agenda. There are strong synergies between the development of an anaerobic digestion facility and an RNG facility at the Hartland landfill location.

ECONOMIC IMPLICATIONS

The transfer station at Hartland Landfill currently accepts source-separated kitchen scraps at $120 per tonne. The cost to the CRD to have kitchen scraps hauled off site and processed is currently $145.89 per tonne. It is estimated that the disparity between the tipping fees charged will cost the CRD a net of approximately $400,000 in 2019.

The economic implications of a long-term in-region facility will be determined with the results from an in-region kitchen scraps processing consultation with municipal/industry waste haulers and it is determined if participants would be willing to commit to paying the tipping fee associated with a successful RFP.

Composting operations have lower capital and operating costs than anaerobic digestion facilities. Capital costs for kitchen scraps processing range from an estimated $2 million to $8 million for composting and from $25 million to $40 million for anaerobic digestion, depending on size and the specific technology used.

Gross operating costs for a composting facility are estimated to range from $60 to $100 per tonne, depending on the quantity processed and technology used. Gross operating costs for an anaerobic digestion processing facility are estimated to range from $100 to $135 per tonne, depending on technology and the quantity processed. However, the higher costs of anaerobic

digestion can be significantly offset by revenues generated from the sale of the biogas produced through the anaerobic digestion process. Composting cannot be expected to generate any revenues other than tipping fees charged.

FEEDSTOCK IMPLICATIONS

Most kitchen scraps collection programs in the region currently accept source-separated kitchen scraps. The District of Saanich co-collects residential kitchen scraps with yard and garden material. Staff from other municipalities have indicated they are considering modifying their kitchen scraps collection to also include yard and garden material in the future. As a result, the type and ratio of organic feedstocks supplied by municipal participants, discussed as part of the collaborative RFP process, will potentially impact processing technology performance.

STAKEHOLDER IMPLICATIONS

Long-term options arising from the RFP process will be presented to CRD municipalities and private haulers, specifying the preferred technology and expected user fees, to allow them to determine whether they will commit to delivering kitchen scraps to the processing facility.

Stakeholder consultation will be conducted with both the local and regional community, including First Nations, regarding the locating of a kitchens scraps processing facility at Hartland Landfill.

SOLID WASTE MANAGEMENT PLAN IMPLICATIONS

The opening of an in-region organics processing facility would require an amendment to the Solid Waste Management Plan (SWMP) with public consultation. Staff are currently working on developing a new SWMP, which is anticipated to proceed to public consultation in the fall of 2019. It is anticipated that there will be an opportunity to consult on the new facility in the overall SWMP engagement process. Regardless, a targeted separate amendment may have to be pursued, if there is a desire to move forward with the facility prior to final approval of the CRD's new SWMP.

The facility would form part of the overall solid waste management system and any financial implications related to the project would have implications on the overall solid waste financial model.

NEXT STEPS

Implementation of the kitchen scraps processing procurement process, based on Board direction, includes:

- secure municipal tonnage commitments
- kitchen scraps consultation process
  - public education on chosen technology
  - issue identification and mitigation
- finalize shortlist recommendation from REOI
- apply for targeted SWMP amendment, if required

CONCLUSION

The systematic development of an anaerobic digestion organics processing RFP, in consultation with solid waste collection providers and the community, has the best potential for facilitating the development of a long-term, sustainable and cost effective processing facility in-region. In addition, an anaerobic digestion facility, and its associated biogas production, is directly aligned with the Board's objective to achieve regional carbon neutrality by 2030 through the production of renewable, alternative fuel.

RECOMMENDATION

That the Parks & Environment Committee recommend to the Capital Regional District Board:

1. That staff proceed with next steps of the process for developing an anaerobic digestion facility at Hartland Landfill;
2. That this staff report be referred to the Solid Waste Advisory Committee for feedback on recommendation and next steps; and
3. That staff return to the Board with the results of the next steps prior to proceeding with procurement.

Submitted by:	Russ Smith, Senior Manager, Environmental Resource Management
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RS:ac