



# Georgia Strait Alliance

"Caring for our Coastal Waters"

www.GeorgiaStrait.org

October 17, 2007

Metro Vancouver Waste Management Committee  
4330 Kingsway 3rd Floor  
Burnaby, BC V5H 4G8

## **Submission: Integrated Resource Recovery Plan**

**Georgia Strait Alliance (GSA)** is a charitable, public interest organization formed to protect and restore the marine environment and promote the sustainability of Georgia Strait, its adjoining waters and communities.

### **Resource recovery from sewage – a viable plan**

#### **Recommended action:**

The expertise for developing a Liquid Waste Management Plan with resource recovery at its core exists both in the greater community, the international community, and even across the Strait in Victoria. Metro Vancouver should rely on experts who are currently implementing resource recovery sewage treatment systems when creating a plan for the North Shore and in greater Metro Vancouver.

- Specific actions:
  - o Create a technical and community advisory committee – similar to what has been created in the Capital Regional District – to advise on upgrade and resource recovery issues.
  - o Review the information gathered by the Capital Regional District in the past year, in particular the proposals received from around the world regarding resource recovery technologies.
  - o Research other communities around the world who are “treating waste as a resource” in a way that is economically, socially and environmentally responsible.
  - o Consult with experts in the field of resource recovery from sewage in BC, Canada, and world wide.

### **Lions Gate – a resource recovery opportunity**

#### **Recommended action:**

- Create a fully integrated plan for resource recovery options on the North Shore before land is purchased. To buy the land, then ask the public what they want, could result in a system that is limited in its ability to recover resources.
- Involve the community now in discussions around plans for North Shore, with focus on creating a sewage treatment system that includes advanced resource recovery

Thank you for considering these recommended actions.

Sincerely

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Clean Air and Water Program Coordinator

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### **Resource Recovery from sewage – a viable plan**

In May 2006, I presented to this committee regarding the option of looking at waste as a resource that can give back to the community. Today's agenda items 5.1 (specifically 3.1.1 and 3.1.2) refer to the following strategic priorities:

- Pursue opportunities to recover energy
  - o Maximize the production of biogas for power generation and heat recovery
  - o Utilize energy from biosolids
- Significantly increase overall energy recovery in the liquid waste system

I commend the committee and staff for the efforts to make these goals a strategic priority. Planning changes and upgrades to the current sewage treatment system in the region around resource recovery are critical for addressing and achieving many of the sustainability goals of the region.

There are already examples of these kinds of efforts being made at some of Metro Vancouver's sewage treatment plants, specifically Annacis and now Lulu Island. They are a step in the right direction, however, they offer only a small impression of what the region's sewage treatment system could look like with an integrated plan for resource recovery. Annacis uses biogas from cogeneration to provide energy for the running of the plant, but it does not provide any additional energy for the community. This is the same with the upcoming Lulu Island project. In addition, the Lulu Island system will still leave us with hundreds of truckloads of biosolids a year.

### **New technology and cost myth**

We could do better. This statement is based on several years of advocating on this issue and learning what other communities around the world are doing. In addition to what I've learned is happening in Washington State, California, Australia and Europe, I've also discovered that bringing these ideas – of distributed systems and resource recovery - to British Columbia is too often met with the response that this new approach is too risky, too expensive and is untested. I respect that the Committee is working to responsibly spend the taxpayers dollars, but what is new is not always more expensive or riskier. It's just different than the way we're use to doing things. In actuality, rather than being a bad thing, it's an opportunity to address liquid waste issues and many of the other issues facing our region, including climate change.

One example of this kind of system is in Gothenburg, Sweden has tertiary sewage treatment plant. Although it treats sewage from the same number of people as Vancouver's Annacis Island secondary treatment plant (740,000) it is very compact, bounded by a nature reserve on one side and by a refinery on the other. The Annacis Island plant occupies 51 hectares, while the Gryaab plant in Gothenburg takes up only 10. The plant also treats a significant proportion of Gothenburg's storm water as well as its sewage and an increasing amounts of organic waste (grease and oil removed from restaurant grease traps, and organic kitchen waste) into the sludge digester to produce more biogas. Biogas from Gryaab is upgraded and injected into the city's gas distribution network for distribution to eighteen filling stations. Biogas currently powers the equivalent of about a thousand cars in Gothenburg, and this number will increase as the amount of organic solid waste treated by the plant increases.

Sewage treatment plants designed for resource recovery are less expensive to build and operate (more compact, require less electricity and chemicals) than traditional aerobic plants<sup>1</sup> Countries like Sweden

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<sup>1</sup> Anaerobic Treatment Advantages  
[http://www.draaisma.net/rudi/anaerobic\\_wastewater\\_treatment.html](http://www.draaisma.net/rudi/anaerobic_wastewater_treatment.html)

are dealing with sewage and municipal solid waste in concert, so that energy recovery plants convert organic materials from garbage, offal from abattoirs, and sludge from sewage plants in single processes.

For example:

- i. There are 3,000 biogas plants in Europe, producing methane from sewage treatment plants and from organic municipal waste<sup>2 3</sup>
- ii. Sweden runs 5,300 vehicles and much of its transit system on biogas<sup>3 4</sup>.
- iii. Sweden is enacting environmental legislation which will require that 60% of phosphates be recovered from municipal sewage<sup>4</sup>

Examples of resource recovery technology can also be found close to home. The Dockside Green Development<sup>5</sup> in Victoria will have an onsite sewage system, while the project in False Creek<sup>6</sup> is planning to have a neighbourhood treatment system which will recover energy from heat.

In addition to recovery resources from sewage, the plant in Gothenburg is less expensive to run. The operating costs (amortization, operations, and maintenance) of the Gryaab plant showed that when sales of biogas and heat are taken into account, the cost of tertiary treatment to citizens of Gothenburg is lower than the Canadian average for secondary treatment.

While Canadians pay an average of \$120 per household per year, residents of Gothenburg pay the equivalent of \$86 per household per year. The reason is that the community uses the money it gains from selling biogas and other resources from sewage to lower the cost to individuals.

The conclusion here is that innovative approaches to managing sewage, and the technology to handle our liquid and solid organic waste together, at a scale we need with lower land footprint, exist and are in use in communities around the world. They need to be considered for our communities as well.

When we address issues of sewage, municipal solid waste, air pollution and climate change in isolation, we limit the scope and creativity of our options. It is through integrated planning for sewage, garbage, energy, climate change, and transportation that we will bring the greatest benefit to our region. European municipalities are showing how green energy can be derived from several waste streams at the same time, and how waste-to-energy infrastructure can effectively treat sewage, and reduce inner-city air pollution and greenhouse gases.

### **Recommended action:**

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<sup>2</sup> Alternative Transportation, Helen Isaac, University of Calgary, Calgary, Alberta

[http://www.cseg.ca/recorder/pdf/2005/09sep/sep05\\_05.pdf](http://www.cseg.ca/recorder/pdf/2005/09sep/sep05_05.pdf) Biogas as transportation fuel

[http://www.fv-sonnenenergie.de/fileadmin/fvsonne/publikationen/ws2003/02\\_d\\_biogas\\_01.pdf](http://www.fv-sonnenenergie.de/fileadmin/fvsonne/publikationen/ws2003/02_d_biogas_01.pdf)

<sup>3</sup> Biogas as transportation fuel

[http://www.fv-sonnenenergie.de/fileadmin/fvsonne/publikationen/ws2003/02\\_d\\_biogas\\_01.pdf](http://www.fv-sonnenenergie.de/fileadmin/fvsonne/publikationen/ws2003/02_d_biogas_01.pdf)

<sup>4</sup> Fossil Fuel Free Kristianstad

[http://www.energie-cities.org/meels/documents/case\\_studies/kristianstad\\_se](http://www.energie-cities.org/meels/documents/case_studies/kristianstad_se)

<sup>5</sup> [www.docksidegreen.com](http://www.docksidegreen.com)

<sup>6</sup> [http://www.eco-integration.com/project\\_experience.html](http://www.eco-integration.com/project_experience.html) and

<http://www.city.vancouver.bc.ca/commsvcs/southeast/>

- Specific actions:
  - o Create a technical and community advisory committee – similar to what has been created in the Capital Regional District – to advise on upgrade and resource recovery issues.
  - o Review the information gathered by the Capital Regional District in the past year, in particular the proposals received from around the world regarding resource recovery technologies.
  - o Research other communities around the world who are “treating waste as a resource” in a way that is economically, socially and environmentally responsible.
  - o Consult with experts in the field of resource recovery from sewage in BC, Canada, and world wide.

### **Lions Gate – an opportunity**

We were encouraged by the announcement last week that Metro Vancouver is looking to purchase land on the North Shore for an advanced treatment plant (secondary or higher). We commend the committee and staff for acknowledging that action must be taken sooner rather than later to upgrade the current primary treatment plant.

We were, however, surprised to hear about potential land acquisition before a plan for what the best treatment system could look like was discussed through an open and transparent public consultation process. We recognize that public consultations will occur, but land selection before the potential of creating an integrated plan focusing on resource recovery for the region is completed– something that would help meet the regions’ sustainability principals - is premature. Buying the land first could paint the region into a corner and limit its options in the future.

Communities such as the Capital Regional District are discovering that a distributed system - many smaller plants, connected to one outfall, rather than one large one – are less expensive to build and provide better options for resource recovery. A fully integrated plan for resource recovery will not only address liquid waste management, but also solid organic waste management, potable water management, community energy requirements, community transportation requirements, and greenhouse gas reduction objectives.

In a fully integrated plan for resource recovery, community demand for heat energy from treated sewage will affect the location of treatment plants, in order to optimize energy recovery. Similarly, if community requirements for reclaimed water are considered, distributed treatment plants may be favoured over a more centralized approach.

### **Recommended action:**

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- Involve the community now in discussions around plans for North Shore, with focus on creating a sewage treatment system that includes advanced resource recovery