

**Mayor and Councillors**

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***Sustainable Community***

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April 8, 2010

City of Richmond

Mayor and Council;

The two great crises of our time, peak oil and climate change, converge in the next 10 to 30 years. The GVRD Waste Management Plan, with a five-year horizon, fails to take this and related issues into account. Business as usual—incineration and landfill—will worsen these crises, both locally and globally.

We can use the billions of taxpayer dollars that we plan to spend on incinerators and ash / landfills to convert to sustainable practice instead.

Metro Vancouver's goal is a Zero Waste Economy. Two options not considered in current initiatives toward this end are Resource Recovery Parks and Local Remanufacturing of Recycled Materials.

Attached please find the discussion paper and conversion proposal I presented to the GVRD Waste Management Committee at their March 17 meeting. I will be taking this proposal to the public input meetings this month. In addition, I am also appealing directly to City Councils in order to broaden this information outreach to Councillors as well, and to the general public.

I would like to address a Standing Committee of Council on these issues, with the goal of moving this initiative to a Council agenda for your consideration. I look forward to hearing from you.

For a future,  
*Hildegard Bechler*

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The ecological solution /s the economic solution and also the ethical.

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# *Sustainable Community*

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Waste Management Committee  
Board of Directors  
Greater Vancouver Regional District

***Local Remanufacturing***  
*Discussion Paper*  
*Conversion Proposal*

## *Executive Summary*

In 2008 the Regional District adopted a strategy to move toward incineration, and a zero waste economy. Part of that strategy is to scale back garbage by increasing recycling.

Also in 2008 the price of oil rose to a record high, collapsing our markets for recycled materials. The assumption today is that these markets will rebound.

Economists forecast that the price of oil will rise to another record high by the third quarter 2010, and will continue to rise as we move past peak oil—also this year.

To avoid a crisis in the near future, we can reduce our dependence on oil and stimulate a sustainable economy by remanufacturing our recycled materials locally. The billions we plan to spend on incineration can be used to begin developing these industries.

To further abate our greenhouse emissions we can convert all the Region's operations to sustainable practice and pay for this conversion with income from the remanufacture of our own recovered resources.

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The 2008 Strategy Document proposes to "aggressively pursue a zero waste economy". In this scenario recycling grows from today's 55% to over 70% by 2015.

In 2008 the price of oil rose to \$147 per barrel, more than doubling the fuel surcharge on a container shipped to China, collapsing our markets for recycled materials.

Economist Jeff Rubin, formerly chief economist at CIBC World Markets for two decades, predicted, in 2000, the record oil price spike of 2008 and the consequent recession. He provides the numbers and incisive analysis showing that shipping costs can only go up as we move past peak oil into depletion and scarcity. World oil supplies are becoming ever more remote and expensive to access, while demand far outstrips supply.

"The transpacific bunker charge, a benchmark fuel surcharge on freight from China, rose from \$455 to over \$1,100 on a standard 40-foot container between

January 2007 and 2008. As the price of oil goes higher, China becomes a costlier and costlier place to get your stuff from."

*Why Your World Is About to Get a Whole Lot Smaller, Oil and the End of Globalization*, Random House, 2009

Rubin has predicted oil prices of over \$100 per barrel by the fourth quarter of this year, slowing the economic growth that comes with rising oil prices and risking another global recession. Both growth and recession—boom and bust—are consequences of over-reliance on oil. Prices will continue to be cyclical, but the troughs and peaks will be higher each cycle. Fast-rising oil and transport prices will be a permanent feature of world trade as "the eighteen-wheeler of globalization is thrown into reverse".

**The Regional Waste Management Plan** is based on the assumption that overseas markets for recyclables will be available indefinitely into the future. Today prices have rebounded somewhat, but not to former levels.

Income from selling recycled materials to brokers has always been far less than the cost of collection. Garbage is sometimes levied to pay the \$200 per ton it costs to collect, transfer, and sell our recovered resources. Today the Region recycles 1.9 million tons each year at a cost to taxpayers of \$ 380 million. Income from those sales is small in comparison, a few million a year. Furthermore, only mixed paper and newspaper bring revenue from brokers; freight-sensitive materials and energy-rich plastic are a giveaway.

At times of low market prices some municipalities are already forced to landfill or compost recycled materials we have all spent so much time and money to collect, also losing the public trust. When overseas markets fail entirely, our only option (if we stay with the 2008 Strategy) will be to incinerate and landfill most of our recovered resources.

**Local remanufacturing can prevent these economic, ecological, and social crises.**

Metro Vancouver supports remanufacturing, but leaves it up to the private sector.

This approach will take too long to deal with our now doubled waste crisis.

#### **Time Frame**

The Waste Management Plan has a five-year horizon, looking only as far as 2015. But we are planning an incinerator that is expected to burn for 40 years, and possibly five more incinerators far extending that time frame.

According to peak oil specialists, 2010 is the end of the five-year peak oil plateau. Today we are starting into the downside of the world oil supply bell curve into depletion. Natural gas will peak by 2014, according to ecologist David Holmgren. His calculations show that *in the next ten to thirty years* we will be into energy descent such that the net energy available per person in 2045 may be as little as 40% of today's abundance. They also indicate that globally, the energy available per capita has already peaked. His essential information provides a good framework for analyzing our waste crisis.

#### **Peak Oil and Climate Change Convergence**

Holmgren has modeled the convergence of "the two great crises of our era" and the "unprecedented challenges for human civilization" that this presents.

"Global peak oil has the potential to shake or even destroy the foundations of global industrial economy and culture. Climate change has the potential to rearrange the biosphere more radically than the last ice age. Each limits the effective options for responses to the other.

David Holmgren, *Future Scenarios: How Communities Can Adapt to Peak Oil and Climate Change*, Chelsea Green, 2009.

He has modeled four scenarios based on "whether energy available to human systems will rise or fall" over the next ten to thirty years as these crises converge. The scenarios vary with the rate of energy descent and climate change. They are already happening in various places around the globe.

- "Brown tech: (slow oil decline, fast climate change);
- Green tech: (slow oil decline, slow climate change);
- Earth steward: (fast oil decline, slow climate change);
- Lifeboats: (fast oil decline, fast climate change)."

"Brown tech" leads to eventual collapse with intermittent periods of stabilization. Oil decline will be slow if we invest ever more resources into getting oil and energy (at the expense of all other societal needs) thus speeding up climate change.

**NET ENERGY: Energy Return on Energy Invested (EROEI)**

Oil and all resources—metals, lumber, fish—are more remote and difficult to access, so we spend more and more energy to harvest less energy and resources in return.

"My own tracking of these issues over the last thirty years leads me to the conclusion that the next energy transition is to sources with lower energy-production rates and lower net energy yield, which in turn will drive changes in human economy and society that are without precedent since the decline and/or collapse of previous complex civilizations such as the Mayan and the Roman."

**Critical Materials Depletion**

"Accelerating economic growth and energy extraction over the last decade has greatly increased depletion of other essential nonrenewable resources, especially phosphates for food production and nonferrous metals for industry."

Metals and all resources are needed for transition to any non-fossil energy sources, including renewables.

**Water Depletion**

**Population Pressures**

**Psychosocial Limits to Affluence**

**Food Supply**

**Financial Instability**

**Species Extinction**

"The title of Richard Heinberg's latest book, *Peak Everything*, sums up the situation."

**Conventional Waste Management**

**Oil-dependent:** Landfill, incineration, and overseas shipping of recyclables, are all about fuel for transport and operations—to 'waste' 3.4 million tons each year.

We are planning "Brown tech": business as usual. We plan to spend \$470 million for the first of possibly six incinerators. Add the cost of operation, environmental upgrades,

ash transport and landfill, escalating oil prices, carbon taxes, greenhouse gases, and other externalities. Each incinerator, added "as needed", each burning 500,000 tons of 'garbage' each year (the capacity of the Cache Creek landfill) will bear these costs.

If we were forced to burn our recycled materials in the near/future, we would need another four incinerators to 'waste' the 1.9 million tons we currently recycle.

We are planning to invest many billions of (endangered) taxpayer dollars in unsustainable infrastructure to harvest a lower grade of energy, using our energy-rich resources as fuel. Meanwhile, child and elder poverty, homelessness, health, education, ecological rehabilitation, infrastructure conversion to sustainability, and all societal needs, get fewer and fewer of our ever more scarce resources.

### **Negative Economic Growth**

But business only appears "as usual" because of the way we measure the economy. Making no distinction between 'goods' and 'bads', we add all money spent into the Gross Domestic Product (long pointed out by new economists such as Hazel Henderson). So oil spills are good for the economy; groundwater contamination, cancer treatment, epidemics, recession bailouts, flooding, drought, polluting waste disposal, the rising cost of oil—are all good for the economy. 'Business as usual' and 'economics as usual' looks like economic growth even as we are actually in crisis and decline.

**Net Energy:** We are planning huge fossil energy expenditure to get much less energy, and lower grade energy, for district heating—for energy-inefficient housing. An EROEI calculation for this system would no doubt show a (massive) negative net energy return. More so when taking the energy inputs in the paper, metals, plastic, etc. into account.

### **Critical Materials Depletion:**

**The 30% of our garbage that remains as ash is the residue of resources that could be recovered.** Six incinerators burning millions of tons of our resources every year, over many decades, would rapidly accelerate both resource depletion and climate change. (Benign climate is also a critical resource.)

### **Water Depletion**

Despite differences about severity, groundwater contamination by the Cache Creek landfill has been shown by testing. Common sense tells us this is unavoidable, despite efforts to mitigate or contain inevitable drainage from garbage and ash. In dry country especially, groundwater and surface water are precious to residents and economies.

### **Food Supply**

That same water and soil is also needed to grow our vegetables, fruit, meat—and fish—for BC's urban as well as rural populations, and for people beyond our borders.

### **Population Pressures**

The GVRD Plan time horizon, as mandated by provincial legislation, is just five years from now. We plan to scale back our 'waste' by 600,000 tons a year by 2015, despite projected population growth of 200,000 people—to 2.5 million. The GVRD projects 2.8 million for 2021, 3.1 million for 2031, growing to 3.4 million people by 2041.

### ***Financial Instability***

The high cost of conventional waste management is not sustainable, even in the near term. In the face of accelerating oil prices and another global recession, it may well be an impossible burden. Dependence on global incinerator corporations subject to the same economic pressures introduces further financial risk and instability.

### ***Psychosocial Limits to Affluence***

Our waste crisis reflects our increasingly dysfunctional corporate consumer culture. Using resources as fuel to produce lower quality energy reflects affluence dysfunction: addiction to energy, 'stuff', and convenience—at any cost.

### ***Species Extinction***

Contamination of air, soil, ground- and surface water by incineration and landfill contributes to the rising species extinction rate. *Homo sapiens* is not exempt.

### **GVRD Waste Management Goals**

- ***Recovery of energy and useful materials:*** Producing heat and electricity is not the 'highest and best use' for our "critical materials".

Recovering our resources instead of using them for fuel saves not only the raw resource but also the energy input they contain, which is retained and used again in remanufacturing. Burning converts that energy and raw material into far less energy of a much lower grade; and into greenhouse gases, toxic smoke, toxic ash. (Bottom ash is also toxic because we burn everything we make together.)

- ***Residuals management:*** Recovering the resources we plan to burn would go a long way toward solving the problem of landfills for ash and 'garbage'.
- ***Zero Waste Economy:*** GVRD documents show this economy as a cycle, as compared to a conventional linear economy. *Waste Disposal* is replaced with *Resource Recovery*; where incineration fits is not specified. **Remanufacturing**, necessary for a full cycle economy, is not in the diagram. It's part of this scenario, but is only listed—as "*Cost*": "*Municipalities must allow recycling or re-manufacturing operations*". This negative paradigm deprives us of one of the most powerful drivers of a win-win, sustainable economy.

### ***Growing the Zero Waste Economy***

The value in our recycled materials that makes it profitable to ship them overseas—the raw resource, the energy put into extraction, refining and manufacture—is available to our own economy at even greater profit through local remanufacture. Rubin points out that rising transport and new carbon costs act as tariffs degrading the comparative advantage of low labour and environmental protection costs in Asia.

In addition to initiatives for producer responsibility and consumer education, the Region can make great gains in waste diversion with expanded infrastructure:

- ***Resource Recovery Parks*** --to reduce, reuse and repair
- ***Remanufacturing Industries*** --to complete the resource cycle here at home.

*Remanufacturing is not without pollution, and also requires resources so reduce, reuse and repair are still priorities.*

Small-scale, decentralized, closed-loop, remanufacturing facilities can ease the strain on our economy from our region's over-reliance on oil.

**Remanufacturing costs and income**

How much remanufacturing capacity we can establish with these billions of taxpayer dollars, and how much income this will yield to pay for waste management and transition to sustainable practice, remains to be investigated. Income would be far higher than "waste-energy" incineration. Growing local demand for recyclables will improve prices and establish a price for the now unvalued, freight-sensitive resources.

***We can begin developing these facilities in this and adjacent regions today using financial resources now planned for a second incinerator and landfill.***

**Growing the Green Economy**

Energy efficiency, resource efficiency (doing more with less) and eco-efficiency (wise use of biological resources and living ecosystems) maintain our planetary life-support systems into the future. At the same time these initiatives build a sustainable economy. As Rubin (and Lovins) point out, "An efficient economy is a clean economy."

The resources and powers of our Regional District government, combined with the skills of local people developing new industries, and the resources of established industry, can actualize the necessary full-cycle infrastructures.

Additional public investment in related systems can achieve "Factor Four" and "Factor Ten" levels of energy and resource efficiency, which approach sustainability.

*(Natural Capitalism, Hawken & Lovins)*

- ❖ Energy efficiency retrofit for all local government systems
- ❖ Energy-efficient re/manufacturing industries
- ❖ On-site renewable energy: solar, wind, geothermal for new and existing facilities ('greening the grid' with diversity, distributed sources, stability)

These best practices reduce our dependence on oil and develop our local green economy while "*Profitably abating global warming*". (Amory Lovins, rmi.org) They move us toward the Green tech and Earth steward scenarios described by Holmgren as the most likely to lead to human survival.

A mix of modalities provides diversity and stability. Through our regional government taxpayers can own capital plants and assets as we do now, but in new remanufacturing facilities. The Region can provide research, financing, and contracts for new local industries. Companies already supplying waste management services can be offered contracts to provide remanufacturing instead. Such win-win practices lock no one out, and provide unlimited opportunities for new industry, business, and jobs.

A case can be made that citizens and taxpayers have a right—indeed, an obligation—to directly benefit from the recovery of our resources. We are not only stakeholders and voters; we are shareholders and owners of our regional systems,



collectively financing them to meet our needs. The inexorable rising cost with no return of conventional waste practices is not sustainable either for taxpayers or governments. We must choose the least cost, if only for the sake of our children.

The cost of public opposition is also high. Citizens who stop incinerators and landfills in their communities, as well as those who are driven to ask for them in hope of economic development, would welcome the many benefits of local, small-scale, closed-loop industries recovering our excess resources. Everyone can agree on least-cost: economic, ecological, and ethical.

### **Institutional Barriers**

Historically citizens pay the *costs* of landfill and incineration. Since the advent of recycling we also pay the cost of collection and get small returns from selling recovered resources. The *profits* that flow from our resource-efficient sustainable practice go to the remanufacturers. The idea of regional governments getting into business making money from reprocessing our excess resources raises the concern that we may get into competition with private industry—resource extraction as well as remanufacturing.

The Regional District government is already in business. We collectively own capital plants and assets, contract with for-profit global corporations to operate the garbage and recycling systems, and earn (very little) money from sales toward paying the costs. However, paying the costs to facilitate profit for others is not *good* business.

Not many corporations are remanufacturing locally, therefore the potential for new industries fed by our vast recycling stream makes competition a non-issue. We are far from meeting the needs of our own markets—in recycled paper, and other materials and goods. The GVRD could, for example, buy the Cascades paper repulping plant right now, then develop and supply local markets. These could include small-scale paper mills owned by the district, municipalities, and private industry.

We would be 'in competition' mainly with overseas remanufacturers. The escalating cost of shipping and "the rising tide of protectionism" in the world will soon eliminate that competition and we will need to supply our own markets. We can no longer rely on our 'competitors' to remanufacture our resources and provide the great variety of low-cost products they make for us—all dependent on cheap oil (and slave labour).

Any reduction in demand for raw materials despite population growth is necessary restructuring that happens all the time in a dynamic economy adapting to change.

### **Limits to Growth**

Holmgren points out that "the continuous growth in human capital and capacity is an illusion". The move from public ownership to privatization (in Australia for example) has been only "apparent economic growth" which has degraded our systems and "has come at the cost of decline in many social indicators of well-being". "Gains in productivity and efficiency in the pursuit of profits have been achieved at the cost of resilience and long-term capacity". Our children and grandchildren lose out.

Competition is not the survival imperative we have been led to believe.

"Even *The Economist* (December 24, 2005) has admitted that economists, including Herbert Spencer, an early contributor, had actually coined the phrase "survival of fittest", so often attributed to Charles Darwin. New research on Charles Darwin ([www.thedarwinproject.com](http://www.thedarwinproject.com)) sets the record straight. Darwin thought that although competition between species was important to evolution, that the human genius for bonding, cooperating and sharing was the key to our survival—including the evolution of moral sentiments and altruism."

"Over six hundred companies world-wide can now account for their success using the integrated triple bottom line: "People, Planet, and Profits".

Hazel Henderson, *Ethical Markets: Growing the Green Economy*,  
Chelsea Green, 2006.

Collectively we have the power to establish universally profitable sustainable practice with direct ethical investment by our municipal and regional governments.

"**Here's the question:** will we decide to reinvest in a global economy and an infrastructure that keeps us bound to oil consumption for every dollar or pound or yen of wealth we produce? If so, we are committing ourselves to a damaging cycle of recessions and recoveries that keeps repeating itself as the economy keeps banging its head on oil prices. If we go this route, peak oil will soon lead to peak GDP.

"Or we can change. Not only must we decouple our economy from oil but we must reengineer our lives to adapt to a world of growing energy scarcity. And that means learning to live using less energy. While much could go terribly wrong in this transition, don't be surprised if we find more than a few silver linings in the process, like a solution to carbon emissions for example. And don't be surprised if the new smaller world that emerges isn't a lot more livable and enjoyable than the one we are about to leave behind.

Either way, your world is about to get a lot smaller."

Rubin

Holmgren likewise envisions the benefits of smaller, more local economies and slower lifestyles. His work and his family's two-hectare demonstration farm in Australia focus on permaculture as the way to regenerate the earth while supporting ourselves on it.

"Let us act as if we are part of nature's striving for the next evolutionary way to respond creatively to the recurring cycles of energy ascent and descent that characterize human history and the more ancient history of Gaia, the living planet. Imagine that our descendants and our ancestors are watching us." Holmgren

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**Proposal:** That the Waste Management Committee and the Regional District Directors reconsider the decision to move to "waste-energy" incineration; and that the GVRD:

Look at ways and means for remanufacturing our recycled materials locally, for maximum direct benefit to taxpayers;

Expand public information outreach and participation with a community cable and internet program discussing all waste management issues;

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Begin now and seize the opportunity to buy the Cascades paper repulping plant.

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Hildegard Bechler

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March 2010