

Watershed *Sentinel*



September/October 2008
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Environmental News from BC and the World

The Rich *Our Biggest Carbon Problem*

Plus:

Transition Towns - Making the Changes

Cuba: Food beyond Oil

Cell Phones - What's Safe?



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Watershed *Sentinel*



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'Eco Glazing', by Vladimir Druzhinin, Russia. This image has been supplied by the Ken Sprague Fund, organisers of the international political cartoon competition 'Earthworks2008'. www.kenspraguefund.org

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Publisher Watershed Sentinel
 Educational Society
Associate Editor Don Malcolm
Assistant Editor Leslie Gillett
Cover and Graphic Design Ester Strijbos
Circulation Susan Mac Vittie

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Watershed Sentinel



Box 1270, Comox
 BC, Canada V9M 7Z8
 Ph: 250-339-6117

Email editor@watershedsentinel.ca
<http://www.watershedsentinel.ca>

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GUEST EDITORIAL

Beware Green Paint



Ideas, plans and ad-hype do not always morph into verifiable fact. Putting the words “eco-friendly” on a Hummer-type vehicle because it is painted with green low-odor paint is nice – if you like green cars – but does not tell the whole truth. Saying your food product is “organic-based” because one of the spices is certified also does not tell the whole truth.

Declaring that an urban area is a “liveable region” with protected green zones because it says so in lots of glossy documents is also nice but may also not be entirely factual, if perhaps the most well-intentioned of the above examples.

Such it is with urban group-planning. A great idea – but does it really work? Greater Vancouver has been kicking around various versions of a liveable region strategy for decades. The latest incarnation, The Liveable Region Strategic Plan, came together in 1996 through the Greater Vancouver Regional District, which includes 21 municipalities.

So how is it going? Well, when checking the website under details for the plan and an update on progress, the only response is subject “not found.” Hmm...

The Comox Valley, which includes three urban areas and four electoral areas with a population of about 60,000, has just entered into a Memorandum of Understanding to co-ordinate regional planning for “sustainability, accessibility and conservation” when considering developments.

These are all good things – if they are done and not simply said to be done. Rubber-stamping and green-washing have a lot in common these days. While certainly planning is a good thing, as is even considering the need for eco-friendly (whatever that really means) products and organic food, the times are changing too fast for any of that to be enough. Liveable region strategies are key to managing the transitional phase the world is now trying to cope with. It may well be that many council members are mired in what used to work – auto-based, suburban tax-based models – and are simply not capable of enacting change.

Once again, with elections looming, it will be up to the public to take a hard look at the liveable strategies in their home region – or indeed see if there is one – and ask for hard data on measurable results.

It’s easy to be green if it’s only paint or paper deep.

Leslie Gillett, Courtenay BC, August 2008

The Paper Chase

When the *Watershed Sentinel* first started its tiny print run 18 years ago, we were photocopied on 100% recycled paper. There have been many evolutions over the years since then, changes in presses, changes in technology and paper. Now again, thanks to some cooperative printers, and the persistent work of Markets Initiative, both the cover and the inside pages are printed on 100% recycled, process chlorine free paper.

We are also introducing a special electronic copy rate of \$15 a year, to encourage that most eco-friendly of alternatives, no paper at all. Our regular subscriptions are going up to \$25 a year (\$40 for two), the first increase in a decade.

And many thanks to those in our New Subscriber Book Draw! The winners should have received their prizes in the mail by now.



Have You Heard?

Compiled by Delores Broten

A Line in the Oil Sand

In May the Beaver Lake Cree of northern Alberta, filed legal papers claiming that Alberta and Canada have infringed Beaver Lake's Treaty rights by approving oil and gas and other developments throughout the First Nation's core traditional territory. The First Nation, a signatory to Treaty 6, says they have drawn a "line in the oil sand" and that the government authorizations are invalid.

—<http://www.beaver-lakecreation.ca>

Solar for Everyone: "It's Easy."

Researchers at the Massachusetts Institute of Technology have overcome a major barrier to large-scale solar power – storing energy for use when the sun doesn't shine – by copying the way plants do it. In a paper in *Science* July 31, Daniel Nocera explained that their non-toxic process uses a new catalyst that produces oxygen gas from water and another catalyst that produces valuable hydrogen gas.

The new catalyst works at room temperature, in neutral pH water, and it's easy to set up, Nocera said. "That's why I know this is going to work. It's so easy to implement," he said. Nocera hopes that within 10 years, homeowners will be able to power their homes in daylight through photovoltaic cells, while using excess solar energy to produce hydrogen and oxygen to power their own household fuel cell. Electricity-by-wire from a central source could be a thing of the past.

—MIT News, July 31, 2008

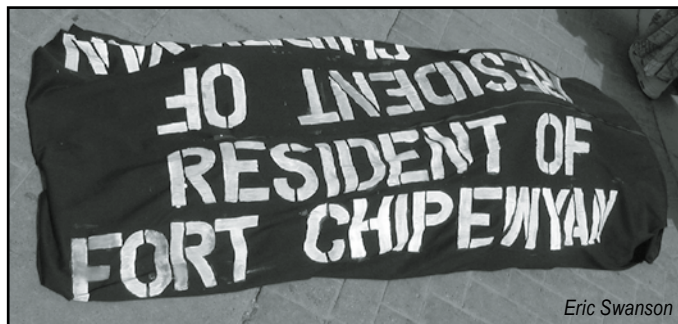
Caution on Mercury Fillings

The US Food and Drug Administration has changed its tune on the safety of mercury fillings. In a statement posted due to a lawsuit from consumer groups, the FDA now says, "Dental amalgams contain mercury, which may have neurotoxic effects on the nervous systems of developing

children and fetuses." The agency will also develop some controls on the amalgam of mercury, silver, tin and zinc, by July 2009, possibly suggesting it not be used on pregnant women. Mercury-based metal blends have been used to repair teeth for more than a century but are being phased out in Europe and the US.

Canada generally requires that dentists capture waste mercury from fillings separately from sewerage waste.

—Philadelphia Inquirer, June 6, 2008



Eric Swanson

Stage prop from a demonstration at the Canadian Association of Petroleum Producers (CAPP) investment symposium held in Calgary in June. Fort Chipewyan is located downstream of the tar sands' enormous tailings ponds which leach pollution that is being blamed for deformed fish and abnormally high rates of human cancer.

Ontario Boreal

On July 14, Ontario Premier Dalton McGuinty committed to preserve 225,000 square kilometres of northern boreal forest. This protection of 50% of Canada's intact boreal is significant because it marks the first time a government

in Canada has explicitly recognized the role conservation must play in combating global warming. Scientists estimate that Ontario's northern boreal alone absorbs 12.5 million tonnes of carbon dioxide a year.

—David Suzuki and Faisal Moola, August 2008

Spreading Dead Zones

Dead zones in the coastal oceans have spread exponentially since the 1960s and have serious consequences for ecosystem functioning. The formation has been exacerbated by worldwide coastal eutrophication fueled by riverine runoff of fertilizers and the burning of fossil fuels. Enhanced primary production results in an accumulation of particulate organic matter, which encourages microbial activity and the consumption of dissolved oxygen in bottom waters. Dead zones have now been reported from more than 400 systems, affecting a total area of more than 245,000 square kilometers.

—Science, August 15, 2008

From Our Readers

Broom and Ivy

Scotch broom can be an unwelcome guest in certain places, ie Garry Oak meadows. These meadows depend on depleted soil, where camus, previously much relished by local First Nations, blooms. Broom adds nitrogen to the soil, which is not beneficial to Garry Oaks or their meadows. But it does valiant work on a clearcut which once harboured Douglas Fir, etc.

A native plant, the alder, also returns nitrogen to the soil. In the past, BC governments, unaware of the value of alder, paid to have it removed along with the broom. My family lived on a clearcut near Cobble Hill and they bemoaned the broom all through my childhood. We didn't realize how much good it was doing – but now, that clearcut is a fir forest.

A much more dangerous invader in the vicinity of Victoria is English Ivy, a truly noxious weed in our area.
Monica Oldham, Victoria BC

No Flying for Holidays

...Every winter people ask me “Where are you going for holidays?” It was obvious to me before we heard of global warming that jets cause pollution, and now having read Monbiot's *Heat* I will probably take a bus to visit family. The bar graphs showing the footprint of specific modes of travel will be very useful when making choices in future.

Thank you so much for getting the meme out there that flying is the worst thing we can do for our planet right now.

And hats off to Joe Foy for being a stalwart environmental hero himself, one of my early mentors. I enjoyed his piece on Hidden Power in the second last issue. Very clever and bang on!

Dan Lewis, Tofino BC

No DU Tested in Georgia Strait

As “veterans” of the Nanoose Conversion Campaign of the 1980s-90s, and as Gulf Island residents, we were intrigued by “Depleted Uranium in the Strait of Georgia,” by G. Turnbull (Jan.-Feb. *Watershed Sentinel*).

...However, after many inquiries to both official and nongovernmental sources, we have come to the conclusion that there is no truth in the story's contention that DU-coated weapons have been (or are) tested at Nanoose or elsewhere in the Strait of Georgia.

The US Navy used DU in the Phalanx, or Close In Weapons System (CIWS), until 1988, when it changed to

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editor@watershedsentinel.ca

tungsten (though continued to use up existing stocks of DU, so possibly some may still be in use). The CIWS must be fired regularly for calibration. However, these firings are done off the West Coast, not in the Strait. According to the Canadian Department of National Defence (DND), the US has never tested its CIWS in the Strait.

...None of the DU-containing weapons are relevant to the Nanoose range, which is designed and used for other purposes (with no live weapons tested there).

Nor is there an “artillery range” off Texada Island, as the author claimed in his follow-up letter to WS. A range does exist off Texada for military aircraft to practice drops of underwater charges, but it is not an artillery range. Furthermore, it has not been used for many years...

Though we may have satisfied ourselves that weaponry with DU is not tested in the Strait of Georgia, we remain, along with our US colleagues, concerned that such firings were carried out off the Pacific west coast (and may still be used by US ships, pending confirmation of disposal of remaining DU stocks). And of course, we can have no solace when we know that this toxic weaponry is used, stored and disposed of in other locations around the world.

*Laurie MacBride, Alan Wilson, Gabriola Island,
Patti Willis, Denman Island BC*

Resilience or Survival

Your Guest Editorial by Noberto Rodriguez dela Vega explains how our culture has missed the opportunity to achieve equilibrium with the resources it depends on...In fact, since our civilization has exceeded sustainable levels of exploitation of the environment, we have been diminishing the carrying capacity of the world for humans. We long ago ate into the carrying capacity for other creatures: (think of buffalo).

...Different regions may be affected variously according to their circumstances. It is true that we, in British Columbia, live in a very favourably endowed region. While we make our preparations to co-exist with very expensive oil we should also be working to strengthen our local communities and all of us should be practising growing our own food.

John Millen, Denman Island BC

More Letters on Page 15 ⇨



Around The World

Globalization hits a speed bump

Compiled by Delores Broten

EU Retreats From Agrofuels

The EU has revised their 10% percent target for agrofuels used in transport by 2010, due to new evidence that increased production of agrofuels is partly responsible for the worldwide increase in food prices. Agrofuels are made from maize, sugarcane, soy and other crops, and were until recently considered a carbon-free combustible that could be used in automobiles without producing greenhouse gas emissions.

But now a World Bank paper says production of agrofuels is responsible for three quarters of the increase in the price of food. The World Bank says that higher energy and fertiliser prices accounted for only 15% of the increase.

An amendment to the *Canadian Environmental Protection Act, 1999*, requiring 5% renewable content in gasoline by 2010 and 2% renewable content in diesel fuel by 2012 passed through the Senate in June 2008.

—*Inter Press Service News Agency, July 28, 2008*

Making Stuff Close to Home

As shipping costs have doubled from \$3000 a ton to \$8000, and carriers have added 20% to the time of passage to save fuel, and in the context of the failure of the Doha Round of talks to extend global trade in agriculture, companies are beginning to relocate their supply lines closer together and closer to their markets. Factories in the Mexican maquiladora, which had been abandoned for Asian sites, are again in demand due to the proximity to the American market. With oil at \$125 a barrel instead of the \$10 a barrel low it hit a decade ago, the entire just-in-time, source-from-around-the-world globalization model is slowly gearing down. In essence, according to the CIBC, shipping costs have increased to the equivalent of a 9% global trade tariff.

—*New York Times, August 3, 2008*

Travel on all roads and streets in the US declined 3.7% for May 2008 (compared with May 2007).

—*Traffic Volume Trends, US Department of Transportation, July 15, 2008*

In Ecuador Nature Might Have Rights

On July 7, the 130-member Ecuador Constitutional Assembly, elected country wide to rewrite the country's Constitution, voted to approve articles that recognize rights for nature and ecosystems.

"If adopted in the final constitution by the people, Ecuador would become the first country in the world to codify a new system of environmental protection based on rights," says Thomas Linzey, Executive Director of the Community Environmental Legal Defense Fund.

—*Climate and Capitalism, July 10, 2008*

Georgia - It's About the Caspian Oil

The conflict in Georgia appears to have been the result of a decade of American attempts to set BP (formerly British Petroleum) up with a second pipeline through the country, not to mention a referendum in 2006 where the tribal region voted overwhelmingly to separate from Georgia.

"At the core of the struggle is a vast network of actual and planned pipelines for shipping Caspian Sea oil to the world market from countries that were once part of the Soviet empire. American policymakers working with a BP-led consortium had already helped build oil and natural gas pipelines across Georgia to the Turkish coast. Next on the drawing board: another pipeline through Georgia to carry natural gas

from the eastern shore of the Caspian Sea to Austria—offering an alternate supply to Western Europe, which now depends on Russia for a third of its energy."

—*www.businessweek.com, August 25, 2008*

See also *www.informationclearinghouse.info*

Fish Fed To Livestock

According to the UBS Fisheries Centre in Vancouver BC, globally we are now feeding 14 million tonnes of edible wild-caught fish to factory farm animals, like pigs and chickens, each year. Wild fish fed to animals on a massive scale include perfectly edible anchovies, sardines, mackerel, and herring which are ground into a cheap fishmeal and sold for animal feed.

—*www.organicconsumers.org*

Don't Cut the Cord!

Cell Phone Update

by Susan MacVittie

As an incessant user of my cordless phone and a mother of a child growing up in the age of wireless technology, the potential harm from radiation of these devices has me fretting. I am not alone in my concern. Newsstands, talk shows and online journals are abuzz with the connection between cancer, cordless phones and cell phones.

Although cautious in their approach, public officials are issuing warnings about the possibility of harmful effects from radiation emissions transmitted from cell phones.

In July, Toronto Public Health recommended parents limit their children's cellphone use and US cancer specialist Dr. Robert B. Herberman advised his staff to limit time on cellphones. Precautionary policies already have been introduced in France, Russia, Britain and Germany, among other countries.

The Science

Since 1999 eight population-based studies have indicated that heavy users of cell phones were twice as likely to develop certain types of brain tumors as infrequent users. Children are thought to be particularly susceptible to the negative effects of radiation emissions because they have thinner skulls, smaller heads, rapidly reproducing brain cells, and their nervous systems are still developing.

The Bioinitiative Working Group, an international coalition of scientists and public-health experts, recently published a hefty report detailing the link between the non-ionizing radiation caused by a cell phone's electromagnetic fields (EMFs) and cancer, DNA damage, Alzheimer's, and other diseases. [See *Watershed Sentinel*, Sept/Oct 2007]

And it's not just cell phones. All modern (DECT) digital cordless phones emit the same type of pulsed microwave radiation (about 1.8 GHz) as ordinary mobile phones. Emissions can be about 6 V/m within a metre of the base unit, for as long as it is plugged in. These base stations emit their radiation even when the phone is not in use.

The Corporation

The wireless industry adamantly denies the association between cancer and wireless phones. Accounts from a handful of well-respected scientists, including Henry Lai and N.P. Singh, who were pressured by Motorola not to publish

damaging study results in the 1990's (they did anyway and lost their jobs), suggest that wireless companies have been doing their best to bury worrying findings, discredit researchers who publish them and design experiments that almost guarantee the desired results.

Mystery abounds with results from Interphone, a 13 country study to investigate possible tumor risks from cell phone use. While results from some of the individual countries have been published, the pooled results – scheduled for release in 2006 – have not.

Questions about who influences Ottawa on cellphone safety were raised this summer when it was discovered that two senior government officials involved in determining safety standards for cellphone use sit on the health committee of the Canadian Wireless Telecommunications Association, which lobbies the federal government on behalf of the telecommunications industry.

What's A Chatty Cathy To Do?

- Check your phone's SAR (specific absorption rate—refers to the rate of radiation exposure from radio frequency) by going to the US Federal Communications Commission website fcc.gov/cgb/sar. You'll need the FCC ID number from your phone – sometimes you'll have to remove the battery to find it. The database is good for phones built in the past two years. At press time, the phone with the lowest radiation was the LG KG800, at 0.135 w/kg. The highest: Motorola V195s, at 1.6 w/kg
- Keep your cellphone conversations short – radiation exposure increases with the length of your conversation. Use text messaging instead
- Use the speaker phone mode
- Invest in a hands-free headset
- Don't have a cordless phone base near your bed
- Use a landline and a cord phone
- Don't encourage your children to use cell phones except for emergencies



Sources

- The Walrus*, September, 2008
The Star, August 2008
<http://www.thestar.com/News/Canada/article/471613>
Seattle PI, August, 2008,
http://seattlepi.nwsource.com/health/373306_cellfona02.html
 Health MSN, August, 2008,
<http://health.msn.com/health-topics/cancer/articlepage.aspx?cp-documentid=100211877>



What Would Grandma & Grandpa Do?

Despite all the discussions, the evasions and fancy market fixes proposed in this carbon-obsessed world, one painless solution stands out. If North Americans were to return to the standard of living we enjoyed in the 1950s and 60s, the demand for oil would drop, a huge chunk would be knocked off our carbon dioxide emissions, and we might even enjoy life more.

by Leslie Gillett

Take Sunday Drives

Not all that long ago, the car was seen as an essential luxury. It was seen as essential because of how handy it is to be able to transport larger goods and a number of people. It was a luxury because it was expensive and since most stores had a free or nominal fee delivery service, not really necessary. People used public transit for day-to-day and saved the car for family outings. It is time to turn away from our slave relationship to the automobile and put it back in its rightful place as occasionally very useful.

Bring Back the Milkman

It is time to re-institute home visits by the milkman, breadman and veggie person. Regular routes in electric delivery vehicles make much more sense than thousands of individual car visits to grocery stores. Reusable glass bottles, bread wrapped in brown paper, veggies in reusable wooden boxes are all possible and make much better use of our dwindling resources. Ask your favourite store about starting up a delivery route.

Plastic is Tacky

In her later years, Grandma actually loved plastic yogurt containers – “so handy for stacking in the sewing cupboard” – but could not understand why everything else seemed either wrapped in or made of some kind of plastic. “Don’t people know you can’t fix it if it breaks, dear?” Time to rethink use of chemically questionable plastics or indeed, all plastics, and figure out what else could work as well or better. Most people now drink tap water from stainless steel thermoses – that’s what Grandpa did. Change can be quick and positive.

Go Downtown on the Street Car

This is one of the times when Toronto can boast and be right. Street cars are great. Efficient and easy, all cities should have them. Rip up that middle lane and put in street car tracks. It’s never going to be more convenient or cost-efficient than right now. No excuse for not improving public transit is plausible. “Why would I use the car, dear, when the street car goes right there?”

Wear a Sweater

“It’s kind of cold in here, Grandma. Can you turn up the heat?”

“Put your sweater on over your thin shirt, dear. It is rather a cool day.”

Use Common Sense

It doesn’t often mean do what is easiest or most convenient, contrary to many advertisements and political posturings. For Grandpa, it meant what would work out best in the long run, and in the short term, what was defensible as logically ethical. Most people don’t put one dish in the dishwasher and turn it on – that’s just common sense.

Pay It Forward

Not what you may think. Back in Grandma’s day, it meant the lay-away plan. Either you saved money yourself to purchase something or the store offered a lay-away plan where they would put the item away and take payments over time. When you had paid for it, you got it; if you changed your mind, you got your money back. No interest, no debt collectors, no impulse shopping. Except for mortgages, most people had no consumer debt. You know a society has too much stuff when much of the new construction in “industrial parks” is storage lockers.

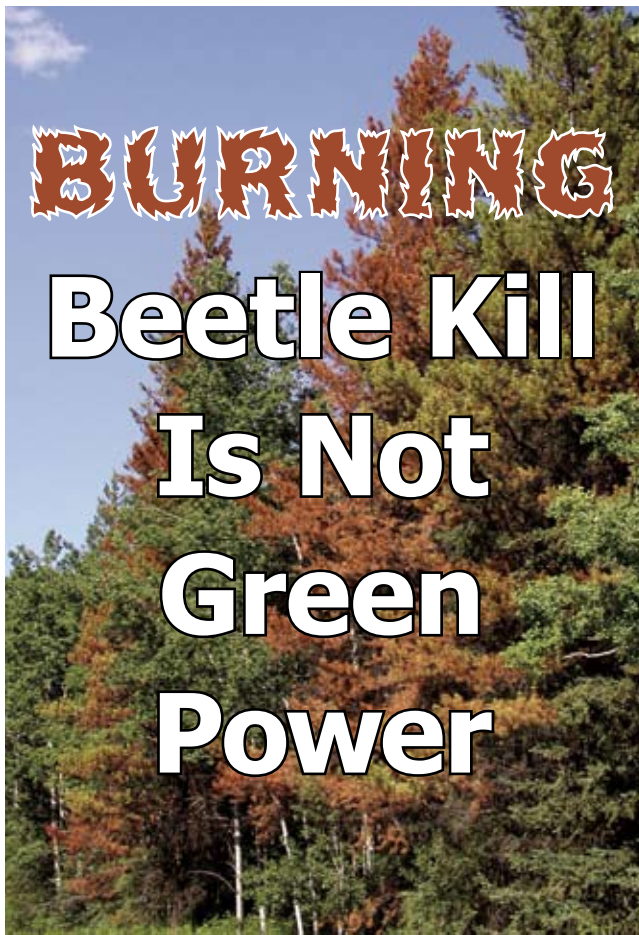
Use a Slow Cooker Instead of Fast Food

Since Grandma usually didn’t work outside the home, the soup or stew simmering on the back burner all day made sense. The slow cooker does the same thing. Put it all together the night before, turn it on in the morning – and a tasty dinner is ready when you get home.

Say No to Away Games

Time for a revolution in the area of sports for children. Parents spend more car time driving to and from games than probably any other one task in daily life. Local sports associations need to re-think policies of away games. Fields and arenas need to be located on well-served public transit lines. It’s just a game, folks, and taking the bus there and back is okay and not bad parenting.





by Dave Neads

Everyone knows we have a carbon dioxide problem. In recognition of this, suppose you wanted to make some lifestyle changes to help reduce these emissions and be part of the solution to the climate change issue. Would you use a fuel that quadrupled your CO₂ footprint, destroyed habitat, reduced job opportunities and required large government subsidies to produce?

Paradoxically, that is exactly what the BC government is proposing with the Bioenergy strategy it is implementing as part of the BC Green Energy Plan.

One of the proposals in the plan is to utilize the biomass that has accumulated from dead trees ravaged by the pine beetle infestation. Converting the affected timber to bioenergy in the form of wood pellets and wood fired electricity generation is deemed to help BC meet our electricity needs, supplement conventional natural gas and petroleum supplies, maximize job and economic opportunities, and protect our health and environment.

However, this “bioenergy” strategy contravenes the government policy on emissions, flies in the face of international commitments and elevates cut levels substantially, destroying increasingly large areas of habitat.

What are the problems with burning trees, especially

The best thing we can do with a beetle altered forest is to leave it alone. The beetle pandemic is a problem we can't fix and anything we do to the forest will just make CO₂ emissions worse, especially burning the trees.

beetle killed trees, for electricity? On the surface it seems like a good idea to get rid of those dead trees, create jobs, reduce fire hazard and quickly re-establish a new young forest to replace the beetle damaged forest which covers much of the central interior of BC.

High CO₂ Emissions

Wood is a low grade fuel. Pound for pound it has only 35% of the energy intensity of diesel. As a result, burning it creates more than three times the CO₂ emissions per megawatt hour (MWH) than diesel does and over four times the CO₂ emissions per MWH than the power we buy from the US Pacific Northwest grid.

One of the counter arguments is that this is OK because new trees will pull this carbon back out of the atmosphere as they mature, so we are just moving carbon around, not introducing anything new. This would be mostly true – if we could wait 125-to-250 years for the new trees to grow as replacements and lock up that carbon.

It takes 70 seconds to burn a tree for electricity. This process releases far more CO₂ than natural decay would over the minimum 27 years, creating an immediate pulse of CO₂ into the atmosphere. Add in the CO₂ release caused by logging and soil disturbance and you begin to get the picture. Logging also removes the understory; it will actually remove the new forest, resetting the biological clock back to zero. Finally, clearcuts, because of soil disturbance, remain CO₂ sources for many years after logging, even when new seedlings are in place.

Yes, beetle killed trees will decay, releasing carbon as they rot. Due to changes in hydrology, the beetle killed trees are not standing as long as they did before. With so many dead trees, the water that they used to transpire is staying in the ground, causing water tables to rise and roots to rot faster.

The average time before a tree falls over is now reduced to approximately 10 years. Once on the ground, the parts touching the soil rot faster than the elevated portions, making predictions of decay rates very difficult. However, the Ministry of Forests (MoF) estimate for pine to decay is 17 years. Add to this the 10 years before the tree falls over and you can see that it takes a minimum of 27 or more years for a tree to rot. As well, not all of the carbon in these trees will become CO₂ since much of it will be resequenced by

biological and chemical means, and much will be taken up by the understory. The forest is not dead – there is a lot going on in this ecosystem.

What about Wildfires?

Wildfires are often cited as a problem, being huge CO₂ emitters. However, beetle altered forests are actually less prone to wildfires than green ones. It was a green forest that burned Kelowna, not a beetle altered one. Fire proofing around communities is a good idea, beetle altered or green, but to say that catastrophic wildfire will ensue if we don't log the forest is a fallacy.

It is also an issue of scale. We can predict that the central interior will have more fires, but we cannot predict which 500 or 5000 hectares will be the site of the next fire. So you can't log one area and fireproof the forest.

Taking all these factors into account, from a CO₂ emissions standpoint, the best thing we can do with a beetle altered forest is to leave it alone. The beetle pandemic is a problem we can't fix and anything we do to the forest will just make CO₂ emissions worse, especially burning the trees.

Subsidized and Locked In Contracts

To be economic, stand-alone Bioenergy proposals typically need 750,000 to 1,000,000 cubic metres of wood per year to operate. Producing 60 MWH annually, these plants need a minimum 20 year licence with a payment schedule from BC Hydro of two to three times the rates paid for run of the river, wind, or current grid production. This translates into a huge subsidy paid by the BC taxpayer to make bioenergy facilities viable.

Beetle killed trees will run out in 10 to 12 years. The proposed 20 year licences with renewal clauses will also have a "force majeure" clause which means that the company will have to provide a firm power supply over the length of the contract. There is only one solution in this situation. When the beetle wood runs out, the company will have to switch to green trees, the very worst thing you can do from a CO₂ standpoint, let alone considerations of habitat destruction.

Additionally, logging and burning green forest will steal wood from an already shrunken forest industry, which will be trying to cope with 60% or more Annual Allowable Cut reductions, scrambling to find wood to keep the mills running.

BioJob Outlook

Just one Bioenergy job will consume 6,000 cubic metres of forest per year compared to the current forest industry which provides one job, the provincial average, for each 1,000 cubic metres consumed. With no mill workers to support, no transportation of wood products, no marketing infrastructure, much lower taxes to pay on smaller buildings and less equipment, there is much less economic spin-off, yet millions of additional cubic metres will be logged. This is a very bad deal for the taxpayers of BC.

In the End

We live in a new world that is as different as the industrial revolution was from the Middle Ages. No one really knows the scope, scale and depth of fundamental social and economic restructuring we are facing in the emerging post carbon world, but it is certain that it will be huge

We need to bring in truly carbon-free energy sources. Wind, run of the river, solar – all are possible with the right policies in place.

Policies which merely try to stave off the inevitable by moving from high grade fuels to more polluting low grade carbon fuels like wood are merely throwing gasoline onto the fire. In the next 20 to 40 years any additional CO₂ is a problem. For every unit of electricity we produce burning wood, we will have to reduce fossil fuel energy by 4 units just to keep treading water. This is a no-win situation.

To be fair, much of what the government proposes is forward thinking, much needed leadership. The CO₂ reduction targets of 33% by 2020 and 80% by 2050 coupled with carbon taxation, no coal, run of the river, wind and other truly green initiatives are good things. But when it comes to bioenergy, the current initiative is a huge mistake, both politically and environmentally.

The only solution is for BC to continue its leadership, to make bold new moves, to get fully behind non-carbon, CO₂ free power. We must "Kick the Carbon Habit" and move ahead with a truly green energy package.



Dave Neads has been involved in conservation and interior forestry issues for twenty years and was a member of the Premier's Task Force for Mountain Pine Beetle. He lives in the Precipice Valley outside of Anahim.



Beetle killed trees in BC's interior

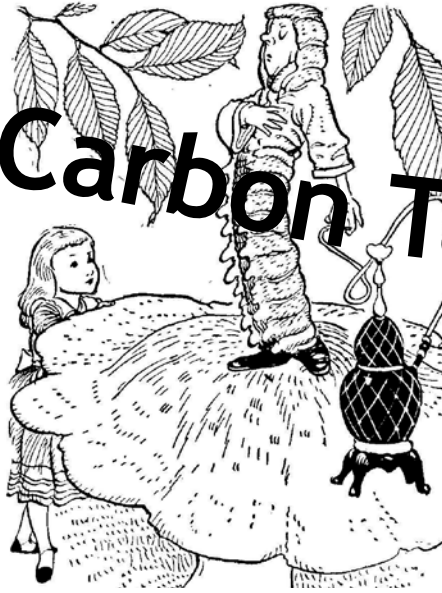
Alice in Carbon Tax Land

by Norm Reynolds

Caterpillar: Who are YOU?

Alice: I – I hardly know, sir, just at present – at least I know who I was when I got up this morning, but I think I must have been changed several times since then.

—Alice in Wonderland



effect-limp carbon tax does not escape Suzuki's praise, though it is dwarfed to insignificance by oil company price gouging. One cannot help wondering if Suzuki may now be suffering heart-ache over Liberal plans to allow oil drilling rigs into our coastal waters. It is most difficult to understand how the

If Lewis Carroll were writing

today he would not have to invent any White Rabbit to invite Alice down a hole into a subterranean, topsy-turvy fantasy Wonderland of confused identities. A simple peep through the keyhole to the BC legislature would reveal a Mad Tea Party with real, live characters to rival Carroll's wildest pipe dreams.

There's Carole James sitting like a sagacious Caterpillar on the mushroom of public opinion. Along comes Gordon Campbell, the Knave of Climate Change denial, smoking a potent blend of election jitters, when the Cheshire of California whispers from behind the bushes, "But Gordon, my Knave, green is gold in election strategies."

Wide-eyed, Gordon calls the other Carole (Duchess Carol) out from the roses and instructs her to proclaim **The Carbon Tax** through the gardens of susceptible voters.

But Carole J. seizes a nasty looking weapon from a passing CTF woodsman and trumpets for all to hear, "Ax the Tax!"

Hearing such a commotion, Suzuki, the mad environmental hatter, gallops into the open on the back of a Green Turtle and thrusts a confused Gryphon into the air shouting to a deck of marching journalists, "Tax This."

This is the carbon taxed, upside down, jaded-green world of 2008 BC politics in which left is right, right:left, green:sour, and nothing is what it is said to be.

Clearly the most mind-boggling part of the whole ruckus over the Campbell Liberals' recent greenhouse gas reduction legislation is the role of David Suzuki – scientist, come nature show host, come environmental activist extraordinaire. Seeming to set aside almost any sense of scientific inquiry or even a modicum of critical analysis, Suzuki has come out with a no-holds-barred attack on the NDP and almost unreserved support for the Liberal program. Even the

government can cut back on fossil fuel consumption and at the same time frantically increase the extraction of those same fuels. What could this champion of emission-reducing public transit, bicycle, and pedestrian friendly communities possibly find satisfying about the Liberals' "Gateway" plan to twin the Port Mann Bridge, quadruple the capacity of vehicle access to Vancouver and run new, four-lane highways through the best farm land in BC?

It just doesn't add up. Has British Columbia lost its foremost environmental White Knight down the rabbit hole of petty BC politics?

This is the carbon taxed, upside down, jaded-green world of 2008 BC politics in which left is right, right:left, green:sour, and nothing is what it is said to be.

The Liberal Party. The thing about low expectations is that they leave room for surprise and appreciation. While it would be easy to be cynical about Gordon Campbell's overnight conversion to climate

change standard bearer, there are a lot of good things about the Liberal Climate Change Plan. Most surprising is the breadth of it. It goes from promises of North America's first cap and trade carbon reduction program to government assistance in creating energy-efficient homes, to a fascinating attempt to subsidize old, super polluting cars off the road as well as roll out the hybrids, to promises to help municipalities adapt to the needs of a climate changed world, to a small but, perhaps, very significant commitment to the development of Citizen's Conservation Councils.

Still, many have begun labeling the Liberal plan Climate Change schizophrenia, and the diagnosis works. How else could one describe pumping the oil out of the ground at frantic rates only to impose a consumption-discouraging Carbon Tax at the pump—all the while investing a huge whack of tax dollars in quadrupling the capacity for the gas-guzzling, vehicle-based transportation you discouraged at the pump?

The NDP. Since the very founding of the Canadian Taxpayers Federation in 1990, the NDP and CTF have been as antipathetic as hot oil and cold water. To the NDP, the CTF represented the worst of the forces seeking to define democracy as the rule of the wealthy and to degrade the role of citizen to consumer. But come the Carbon Tax and, in a muddle of identity crisis, the NDP pulls the “Ax the Tax” campaign directly out of the CTF primer; the two antipodes go off singing the same song, like startled, confused lovers following an evening of heavy drinking.

Unless we work on solutions that do politics differently, we will reach a tipping point, where the sum of all of our differences is simply the madness of our mutually assured destruction.

The real problem for the NDP is that the “Ax the Tax” campaign rouses a lot of boisterous buddies that may sing along for the ride, but will never support an NDP government. And it alienates a lot of friends who see the campaign as a cheap political ploy and fail to notice that behind the rhetorical fluff, the NDP does have a relatively comprehensive greenhouse gas reduction framework. The NDP plan includes scrapping the Gateway Project in favour of a complete reevaluation of rail, transit and community design for the Lower Mainland; it includes the moratorium on offshore drilling; it centres, like European plans, on emission caps and incentives at the source of the problem; it recognizes the need for alternatives to empower individual choices. Unfortunately the belligerence of the “Ax the Tax” campaign encourages the perception that dealing with climate change is the responsibility of big business, not the “little guy.”

The Green Party. If there is any party that missed the way out of this not-so-wonderful, climate-changed land of evaporating ice caps, rising oceans and angry winds, it is, most tragically, the Green Party. Not that they don’t have the most climate friendly platform of all the parties; they are the only party to call for a carbon tax of \$50/tonne – a level that might actually change industrial processes and consumer habits. But instead of putting forward a positive vision and working to bring together the kind of all-party cooperation that it will take to implement such a vision, the Green Party has opted for a partisan stream of hyperbolized vitriol directed at the NDP. The Greens are seemingly as cozy with the gross inadequacies of the Liberals as the NDP with the antisocial arguments of the CTF.

Clearly it’s time to heed the warning the Cheshire Cat leaves with Alice, “Beware – everyone you meet here will be mad.” Working together to build social consensus is our only hope of getting the across-society buy-in necessary to prevent the worst impacts of climate change. Every short-sighted, self-interested political partisan who picks at a particular policy flaw in others simply for short-term political

gain while failing to see that, is absolutely mad.

There are as many possible flaws in a cap and trade system as in a carbon tax; as many legitimate criticisms of an ‘at source’ tax as a ‘consumer end’ tax; and a perverse wonderland of proofs of ‘unfairness’ inherent in any policy direction that any party might choose.

We can keep debating the details until there are no more heads to off, but unless we can put narrow partisanship aside and work on solutions that do politics differently, we will, all-too-soon reach a tipping point, where the sum of

all of our differences is simply the madness of our mutually assured destruction.

Given the hugely successful consensus building work of the Citizens’ Assembly on Electoral Reform, perhaps the most positive suggestion to come out of this all-too-political polemic on climate change is the idea of creating Citizen’s Conservation Councils. Perhaps, at last, we must change not only what we do, but how we do it.



Norm Reynolds lives in Courtenay BC.

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Heart of the Watershed

If rivers and streams are the veins and arteries of a watershed, and wetlands are the kidneys that cleanse the water, then the central element of the watershed must be the heart: in the case of the Comox Valley, that heart is the Courtenay River Estuary.

The “Heart of the Watershed” is a symposium event hosted by Comox Valley Project Watershed Society, on October 3rd and 4th, 2008. This unique event will increase awareness and knowledge of the work that has been done and that needs to be done to preserve and restore the Courtenay River Estuary. The aim is to create a community action group with a plan dedicated to preserving and restoring the health of the Courtenay River Estuary ecosystem.

The symposium program will include the history and importance of the estuary, present condition and challenges, and vision for the future. Activities will include speakers, displays, facilitated discussion sessions, workshops, and field trips. The key-note speaker will be Dr. Thomas Homer-Dixon, Centre for International Governance Innovation Chair of Global Systems at the Balsillie School of International Affairs in Waterloo, Ontario. Other featured speakers include Dr. Will Marsh, of UBC Landscape Architecture, and Dr. Rob Butler, Adjunct Professor of Biological Sciences at SFU. Additional presenters will include archaeological researcher Nancy Greene, the Nature Trust of BC, Ducks Unlimited Canada, Fisheries & Oceans Canada, Georgia Strait Alliance, Seagrass Conservation Group,



A family examines Comox Valley Water Watch Coalition’s new public education tool, a 6 foot x 4 foot 3-D model of the Valley, built by Trevor Wicks of Trentec (www.innovationbc.com). The model, at a scale of 1:40,000, can have special features marked in the styrofoam, and is now available to schools, community groups and others for use in projects, fairs, and public hearings.

Mid Vancouver Island Habitat Enhancement Society, Ministry of Environment, and more.

For more information, contact Coordinator Krista Kaptein symposium@projectwatershed.bc.ca. Project Watershed at www.projectwatershed.bc.ca will have regular updates, program and registration information.

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Buck Hill: Is it a Geopark or Lava Rock?

Along the North Thompson Valley, just a few kilometres north of Little Fort, the winding Yellowhead Highway straightens and, almost suddenly, the dominant landform becomes the rakish, snow-covered peak of Raft Mountain. This is Wells Gray Country.

Wells Gray is really the Rockies-with-a-difference. Although the rock that makes up its sky-scratching peaks seems to be the same brown, crumbly stuff that forms the Rockies, here the rock is volcanic, rather than sedimentary. This rock was belched up from the stomach of Mother Earth, some of it as recently as several hundred years ago.

It is up one of the Wells Gray side valleys, called the Upper Clearwater, populated with tough, independent people, where seventy-eight year old George Briggs and his wife, Judy, eke their living from a small farm. George has a keen mind for detail and he makes it his business to keep an eye on events that could threaten the environment or the cherished lifestyle that he and a small number of other families enjoy in the Upper Clearwater.

Although George hardly fits the stereotype of a tree-hugging activist (for starters, few tree huggers have Masters degrees) it was his work that first blew the whistle on a mineral claim for lava rock, placed on Buck Hill, Canada's most accessible volcano. "They've claimed the entire mountain and they could reduce this wonderful feature to a pile of rubble as it gets shipped off to cover driveways and line the insides of barbecues," said Briggs, at a special meeting called by the Yellowhead Ecological Association.

Although there's no such thing as high-speed internet in the Upper Clearwater, news still travels quickly here. Another valley resident, Trevor Goward, naturalist, lichenologist, co-author of *Nature Wells Gray* and fierce defender of all things Wells Gray, got the news. Together with a handful of others, the pair formed the Friends of Buck Hill.

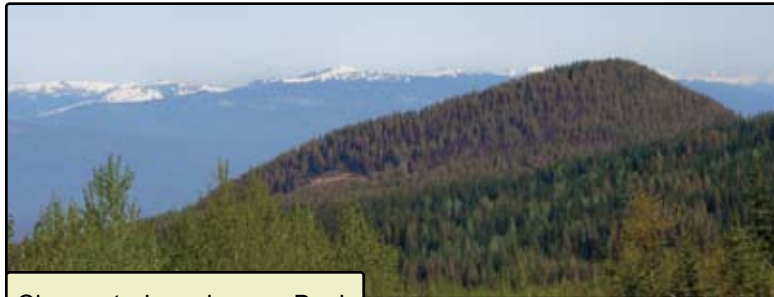
A few years back, Briggs and Goward, with several other residents of the Upper Clearwater, had spent three years hashing out a land use plan for the valley, one that articulated a special recognition of Buck Hill. However, the BC Government's internet-based, click-a-claim Mineral

Claims Online system does not recognize local land-use plans. So Buck Hill got claimed, its fate linked to the demand for fancy landscaping around million-dollar homes.

Early on, a brief meeting with Liberal MLA and, then Mines Minister Kevin Krueger elicited a whispered admission that he couldn't "do anything" about the Buck Hill claim unless and until there was a groundswell of emotion within the community. Since then, the Friends have launched a website, rebuilt trails near Buck Hill and held guided hikes for the community. There have been articles in the local paper, a postcard campaign,

public presentations and a mention in the BC Legislature.

Recently, the Friends have drafted a plan to apply for UNESCO recognition, possibly under a new designation called the Geopark, for the unique selection of Wells Gray area volcanoes. UNESCO could help save Buck Hill and enhance tourism in Wells Gray. After more public meetings, and an open house at Goward's with 80 people attending, the web of support is definitely widening, but still the promised visit by MLA Krueger has not materialized. The needed groundswell seems to be happening but, practically, the Friends of Buck Hill appear to be stuck at Square One. Politics has not yet befriended Buck Hill.



Clearwater's volcano, Buck Hill, looks out to the snow-capped peaks of Wells Gray



David Simms lives in Clearwater, BC

A 2008 presentation by Dr. George Carlo, a world authority on electromagnetic radiation.

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Spot the Naked Emperor!

by Leslie Gillett

The *Spot the Naked Emperor* in this issue is almost too obvious to be pointed out. But in recognition of the people who seem to be operating full-throttle ahead while looking backwards, the Naked Emperor is... building new roads.

Any politician, planner or developer who touts the need for new roads in this greener day and age is indeed unclothed and, like the little boy in the story, needs to be called on it. Perhaps we could all get together and start humming, “Three blind mice, three blind mice, see how they run,” at every press announcement of new roads, highways, interchanges, twinned bridges...

These car pushers must be wilfully blind to both the present and future costs of an automobile-based transportation system. The general public is not. Gas prices, global warming, polluted air, consumer debt, dwindling resources – pick any or all of these reasons to rethink the stranglehold automobiles have on 21st century life. Many people are already driving less – or at least trying to – and therein lies the rub. Unless you live in Europe or maybe Toronto or Montreal, it is virtually impossible to live daily life without a car, especially if you have children.

Rail first, bus second, then dedicated lanes for bikes, scooters, walkers – new roads should now come last when planning a transportation system. A development strategy which only allowed new roads after the other public transit infrastructure was in place would be an interesting place to start creating a truly liveable future. Billions of dollars are being put into road systems across BC – \$10 billion alone on the Gateway project in the Lower Mainland which includes the twinning of the Port Mann bridge. Where are all those extra cars going to go when they get across the bridge? Greater Vancouver air will look like that of Beijing soon – just in time for the Olympics. Oh wait, maybe that’s the master plan.

But seriously, it’s time governments and planners stop using our money for outdated infrastructure.

As usual, the people are ahead of the politicians and easy money lovers. Groups around the province have been fighting for years for rail corridors. One, advocating for rail out to the Fraser Valley, is called Valley Transit Authority Committee (VALTAC) and they see “connecting communities with an economical passage rail service” as simple common and economic sense. Another group in the Lower Mainland is advocating for the return of street cars; visit their space at the StreetCars for Vancouver Facebook



Any politician, planner or developer who touts the need for new roads in this greener age is indeed unclothed.

group. On Vancouver Island, the Island Corridor Foundation is a non-profit group of local governments and First Nations which now owns the rail line from Victoria to Courtenay and is advocating for money for upgrades and a true commuter rail service.

So, to help out the politicians, let’s keep it simple. Keep the present rubber tire infrastructure in good repair and put a moratorium on any new road building. Put money and time into planning and executing an efficient, well-connected public transit system of trains, subways, street cars, buses, bikers/walkers only lanes. Electric car only areas? Scooter routes?

Add your voice to the call for responsible and innovative transportation corridors. With elections coming up, get prepared to hum the Naked Emperor tune: “Three blind mice, three blind mice, see how they run ...”

Gateway to Global Warming

“The Gateway Project is the most environmentally threatening highway mega-project in the history of British Columbia. It will affect our region’s air quality and hasten global climate change. And it won’t reduce traffic congestion,” say opponents.

The Project is a massive old-school highway-expansion plan for the Vancouver area and the Delta shipping port. It is expected to cost approximately \$10 billion.

Ecologists are also warning of the impact of the South Fraser Perimeter Road, part of the Gateway development, on Burns Bog, where peat acts as a water filter and prime carbon sink. They fear the roadways will kill off the 30 or so Greater Sandhill Cranes left in the Bog,

—www.Gatewaysucks.org. See also the Gateway 40 Network at stopgateway.wordpress.com and www.burnsbog.org

More on CFLs From Our Readers

They Fail

CFLs: They fail before they should. They fail when switching on, just as incandescents do, and for the same reason; they have a filament in each end of the tube, and it seems inrush current is the killer. So they last better if never switched off, and a calculation of the trade-off between more current consumption and longer life is complicated but interesting.

Maybe one more component would limit the inrush current, reducing the waste disposal problem as well as reducing consumer cost. But it would reduce the manufacturers' and the dealers' profit.

Bob Eldridge, Pemberton BC

Best Option for Now

While I agree that, in many applications, LED lights would be better, this technology is very young and extremely expensive for general lighting use at this time. There is no way the average consumer could be convinced to spend this kind of money on light bulbs when we still enjoy some of the cheapest electricity rates in the world.

At the present time CFLs are the best alternative to incandescent bulbs for most uses and do dramatically reduce electricity consumption in the average home...

CFLs contain mercury, and I don't want any on my breakfast cereal either, but again, let's not single out this one device in our technology filled lives. Every light switch in your home contains lots of mercury, your thermostat has enough to make a few dozen bulbs, most of the electronic gadgets in your house have numerous little relays containing mercury. And then there's your compu-

ter and television, both of which contain several pounds of lead, dozens of mercury filled switches and enough heavy metals to scare the willies out of you.

So don't break the bulbs, it's not hard to avoid. The good news is that there are recycling programs for CFLs. Many retailers and shopping malls now accept them. There is also a great recycling centre in Nanaimo where you can recycle CFLs, regular fluorescent tubes and a stunning array of other nasty things you find around the house. By the way, conventional fluorescent tubes contain far more mercury than CFLs. These items should definitely be recycled.

CFLs are one piece of technology that everyone can use on a daily basis to make a significant difference in their energy consumption. Everything comes with positives and negatives, but compact fluorescent have far too many benefits for us to reject at this point in time. Buy good ones that last a few years, then recycle them responsibly, and lobby your local government to improve recycling facilities.

Jim Palmer, Courtenay BC

Change Light Bulbs, Sell Coal

Thanks for pointing out the painfully obvious smoke-screen promotion of CFLs...It's hard to feel good about changing a few light bulbs, when burning coal and transporting oil across mountain ranges, down the coastline, and across the ocean is a-ok with our current provincial and federal governments.

Susan Yates, Gabriola Island BC

Warning: BC's carbon tax is bad for your health

by David Simms

BC's carbon tax is supposed to shift taxes from income onto the carbon dioxide produced by burning fuels. This works for corporations and for individuals but BC hospitals and schools don't pay income tax and their grants won't be increased to cover the carbon tax that they have to pay. This isn't good for your health because stretched budgets will be strained even further.

It'll hurt in another way, too.

The carbon tax is "revenue neutral." This is business-speak for "what comes in equals what goes out." The government gives up some income tax revenue which is replaced by the carbon tax. The two are supposed to be equal but, in practice, they'll never be. Revenue predictions are just guesses about future economic performance. Sometimes carbon tax revenues will be less than the tax

cuts they're supposed to replace, sometimes they'll be greater. This is normal.

When carbon tax revenues are less than the tax cuts, the treasury makes up the difference however, according to the *Carbon Tax Act*, a mean-spirited mechanism called "an adjustment amount plan for the reduction in Provincial revenues" kicks in when there's an excess in the carbon tax account. This forces the Minister of Finance, under threat of a 15% pay cut, to pay back any revenue that is greater than what's needed to cover the income tax cuts. This one-way valve prevents shortfalls from one period from being covered by excesses in the next. It'll drain the treasury and it'll impact programs. Again, it's bad for your health.

School closures and longer surgery wait times are Gordon Campbell's cure for climate change.



Carbon: Life Styles of the Rich & Death

Math, Not Morality, Requires Wealthy to Make Biggest Reductions

Global demand for oil and gas could be cut quickly, by a small group of people, without any real suffering. That is because the globally wealthiest 8% are responsible for most fossil fuel use, and most of that is for non-essentials.

by Barry Saxifrage

Almost all the energy we use to build the “good life” comes from fossil fuels, gas, oil and coal. But now that same fossil fuel use is tearing our good life apart. We can’t have both anymore. Time’s up: we have to choose now. We can promptly and purposefully create a new version of the good life without fossil fuels...or we can continue aimlessly into collective misery.

Fossil fuel emissions drive climate change and ocean acidification. Together they are inflicting thousands of cuts on our web of life. All 6.5 billion of us rely on this web for food, water, shelter, resources, health, jobs, security and plain old fun. Parts of the web are collapsing. According to top climate scientists, we’ve already emitted too much carbon dioxide (CO₂) from burning fossil fuels. Unless North Americans seriously cut our emissions now, it may be too late.

At the same time, our oil demands now outpace supply. The rocketing increase in oil prices is eroding capital, jobs, lifestyles, and even access to food, heat, and shelter, in BC and worldwide. Top economists say that without massive preparation, peak oil will cause economic disaster.

Now the good news

Global demand could be cut quickly, by a small group of people who will not experience any real suffering. That is because the globally wealthiest 8% are responsible for most fossil fuel use, and most of that is for non-essentials.

By limiting their fossil fuel luxury, they could make the necessary cuts to global emissions. The wealthy are also the only people with the financial resources to develop much-needed alternatives.

Thankfully, the poorest three quarters of humanity, who rely on fossil fuel for basic needs, don’t need to make any painful cuts to solve this crisis. Professor Stephen Pacala of Princeton University calculated the emissions per person for all six and a half billion of us.

His surprising results reveal that the three billion poorest people in the world emit essentially nothing. Meanwhile, the wealthiest 500 million people (8% of humanity) are responsible for half of greenhouse gas emissions.

Furthermore, the wealthiest 15% are responsible for three quarters of global emissions. The remaining 85% of humanity emit one fourth of the total.

Who are the global wealthy?

When discussing how to meet the current European Union (EU) goal of limiting atmospheric CO₂ to 450 parts per million (ppm), Pacala says: “Let’s suppose there’s a limit placed on individual emissions. Anybody under the limit is free to emit what they want, anybody over the limit is supposed to reduce down to the limit. ...The earnings of a person at the threshold throughout that entire period (the period in this case is 2007–2030) are between \$30,000 and \$40,000. So these people are all wealthy by international standards. The poor never run afoul of the green line.”

The latest science shows that 450 ppm is likely too high and that 350 ppm may be required to prevent dangerous climate change. If so, the income limit would drop some. But the basic reality is unchanged: the crisis could be solved by a reduction in fossil fuel use by the wealthiest segment of global society.

Math, not morality

The data shows the globally wealthy could solve the crisis, but more importantly it also shows there is no other way. Humanity must cut fossil fuel emissions one third in

the next decade, and 80% to 90% overall, to preserve any chance for anyone to enjoy the good life. The only people who can cut global fossil fuel use enough are the wealthiest 15%. And most of the cuts will need to be made by the wealthiest 8%. That's because they are using almost all of it. The globally wealthy must make the major reductions.

It's not about morality or doing the right thing for others. The wealthy could try to heartlessly deprive 85% of humanity of all fossil fuels – and all food, water, products and services that come from them – and not get even a third of the cuts needed to save their own “good life.” Of course long before most of humanity got shoved into abject poverty, there would be carbon riots, massive starvation, social collapse and global war and chaos.

Math, not morality, requires the wealthiest slice of humanity to do almost all of the big fossil fuel reductions. The threats of run-away climate change and oil hyperinflation mean we need to start now.

The problem is that we don't yet have a limit on individual fossil fuel use and emissions – other than price. If we did, most folks could avoid the economic and lifestyle pain coming their way.

Instead almost all our plans and laws to reduce fossil fuel use – from carbon taxes, to cap and trade, to peak oil – result in increasing the price and then letting

Continued on Page 18

A Really Inconvenient Truth

“The 3 billion poorest people...emit essentially nothing. The take-home message here is that you could increase the emissions of all of those people by putting diesel generators or anything you wanted into their lives and it would not materially affect anything I'm going to say... In other words, the development of the desperately poor is not in conflict with solving the climate problem, which is a problem of the very rich. This is very, very important to understand....

“In contrast, the rich are really spectacular emitters. ...the top 500 million people [7.5% of humanity] emit half the greenhouse emissions. These people are really rich by global standards. Every single one of them earns more than the average American and they also occur in all the countries of the world. There are Chinese and Americans and Europeans and Japanese and Indians all in this group.”

—Stephen Pacala, Presentation to International Institute for Applied Systems Analysis, 2007, http://www.iiasa.ac.at/docs/IIASA_Info.html

All the world's people lined up in order of their annual climate changing CO2 emissions, then divided evenly into groups of 500 million people = 7.5% of global population. Based on data by Professor Pacala of Princeton as found at <http://www.iiasa.ac.at/iiasa35/docs/speakers/speech/ppts/pacala.pdf>. Bottom part of chart shows relative per-capita household wealth. Wealthiest 15% have 300 times the available wealth as poorest half of humanity.

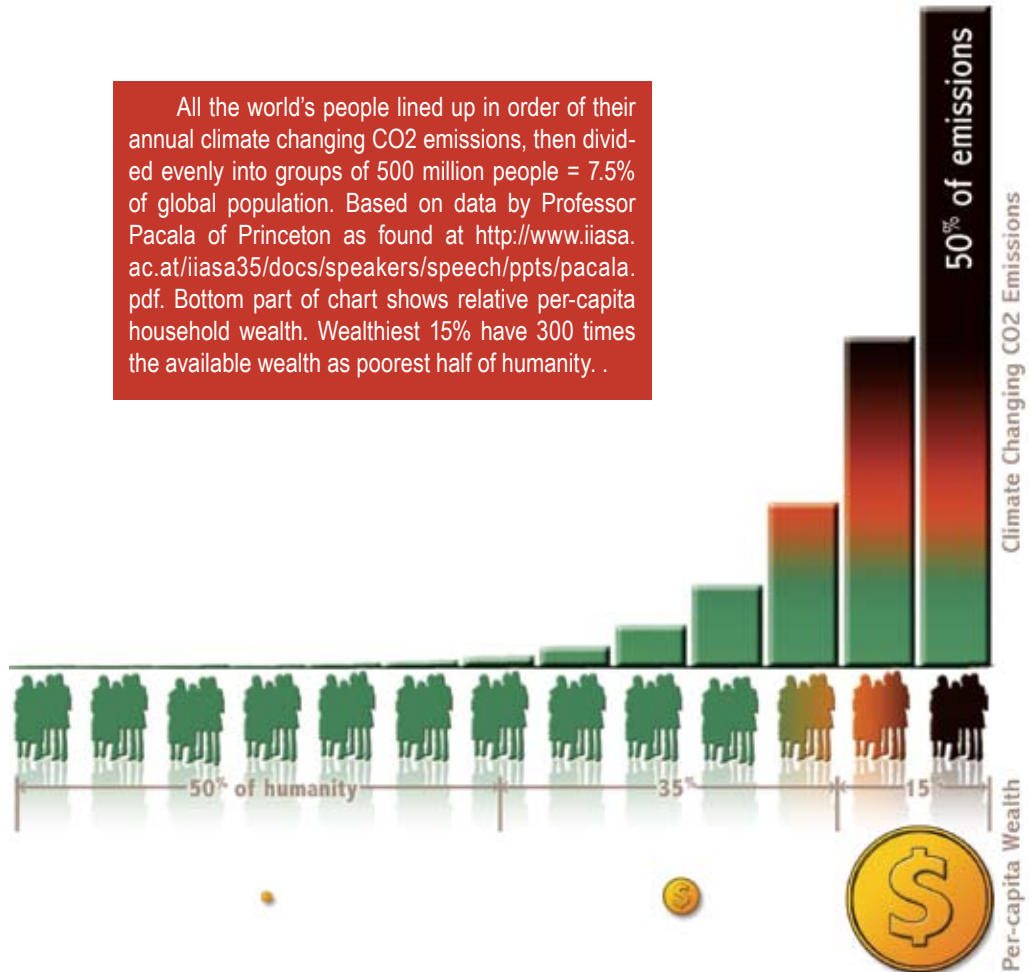


Chart and image by Barry Saxifrage of www.stonebreakerdesigns.com

⇐ *The Rich continued*

people bid against each other to buy all they can afford. Predictably, the poor get out-bid first, and lose access to food and mobility. The wealthy, will be the very last to be forced, by price alone, to cut their use.

Even worse, economic disaster can unfold rapidly. Demand regulated only by price can quickly send prices sky high. Trying to reduce the wealthy's demand for fossil fuels solely via cost will destroy the poor and middle class first. Nobody will want to live in the future this will usher in.

One example: transportation

More than a third of BC's fossil fuel emissions come from transportation. That means huge cuts in transportation fossil fuel use are required soon. Who's using that fuel? Who can afford to cut versus who is actually being forced to? A recent Canadian Centre for Policy Alternatives study showed the richest 10% of Canadians use nine times more fossil fuel for transportation than the poorest 10%. A study in USA showed that citizens in wealthy counties spend less than 2% of their income on gasoline. In the poorer counties people average over 15%. For these folks it is becoming a choice between transportation or food or shelter. You could increase the price of gasoline 500% and the wealthy in North America would still spend a smaller percent of

Hyperinflation

Most oil industry experts recently surveyed by New Scientist think global oil supplies will peak by 2010. Many, like legendary Texas oilman T. Boone Pickens, think we already have peaked and that demand is now more than possible supply. A US Department of Energy study said that if demand reaches 4% more than supply, then oil prices will nearly triple. Imagine the global chaos when gasoline is triple today's price. The US Department of Energy also says that unless the world starts a huge push to create alternative energy sources 10 to 20 years before the peak, there will be a crisis "unlike any yet faced by modern industrial society."

The food riots and hunger crisis now occurring around the world are the first signs of social collapse and misery that these high prices are unleashing. We traded soil for oil years ago, and now the vast majority of agricultural output relies on fossil fuels. As the oil price rises, more people starve. In the last 12 months alone, according to the FAO, 100 million have joined the world's hungry. Inexpensive oil is essential to the lives of billions. We can't allow demand-led hyperinflation to take off. To preserve the stable, functional economy needed for the good life, we must cut global demand for non-essential oil now.

Acidic Oceans

Carbon dioxide is destroying humanity's most ancient and reliable sources of sustenance. Ocean acidification is already tearing apart the edges of the marine ecosystem. Unchecked it will kill most of the planet's coral reefs, fisheries, oysters, clams, sea urchins, starfish, snails and many plankton species...just about anything with calcium shells, along with the food webs they support.

Up to half the CO₂ we've emitted from burning fossil fuels has been absorbed by the seas, turning them 30% more acidic. Recent tests off Vancouver Island show some surface waters are already dangerously acidic – 50 years sooner than predicted. Marine scientists warn, "Frankly, ocean acidification is apocalyptic in its impact." We've changed the basic ocean chemistry at a rate that is unprecedented in geologic history. Once we stop burning fossil fuels it will take the oceans a hundred thousand years to restore the acid balance.

their income on gas than fellow citizens in the poorest areas do already.

On a global scale it is much worse. Three billion people have less than \$2/day to try to survive as oil hyperinflation kicks in. They will never be able to out-bid us for access to any of the limited supply.

At the other extreme, the most fuel-demanding means of travel is also the fastest growing source of emissions: jet travel. And the fastest part of that is the boom in private jet travel. A UK report says, "The growth in flying over the past few years has been due to rich people flying more, whilst those on the lowest incomes are actually flying less." And the wealthiest are flocking to private jets.

The poor are already being priced out of basic mobility. The wealthy can easily buy more than before, and are using the most wasteful transportation modes possible.

Needed: new laws

New laws are needed to ensure the wealthy quickly reduce their fossil fuel consumption. Here are a few that have been proposed.

Cap-and-dividend: Dr. James Hansen, NASA's top climate scientist, advocates a "cap and dividend." Like "cap and trade," a limit is placed on emissions. Then polluters must pay a fee for the right to emit. Uniquely, 100% of this fee is returned in equal payments to every citizen.

The BC government's initial \$100 climate dividend was a similar approach but it was a one-time event. From now on in BC, collected fees go to income tax cuts. That removes some incentive from the wealthy and removes some

price-support for the poorest. Also carbon taxes don't guarantee demand will fall, as caps do.

Personal Limits: A UK Parliament committee recommends a cap-and-trade system for all citizens. People would get a "carbon emissions allowance" they could use or trade. They say this would cut emissions more effectively than either carbon tax or industry cap-and-trade. The UK has done a pilot study that shows such a system is possible, but concludes the public isn't ready for personal limits yet. Perhaps as more and more people get outbid for access to fuel they will see the wisdom of regulating demand to keep fuel affordable. As Pacala shows, the personal limit could be high enough that most people are barely affected. The overall reduced demand could also lower prices for everyone as well.

While each of our actions is not sufficient to solve the problem, they are all necessary.

Major Public Investments: Many people have called on wealthy nations to invest massively in alternatives to fossil fuels. They point to past game-changing initiatives like the Marshall Plan, the Manhattan Project and the Race to the Moon. Al Gore recently called for the USA to switch 100% of its electricity to non-fossil-fuel sources within 10 years. How much would such a project cost? A report from Oil Change International says the total US spending on the Iraq war could cover all of the global investments in renewable power generation that are needed between now and 2030 in order to halt current warming trends.

Jail Time: Monetary laws might not be enough. As people get more angry and frustrated, calls for criminal laws to punish the worst of the climate destroyers are growing. Dr. Hansen recently told the US Congress, "CEOs of fossil energy companies know what they are doing and are aware of long-term consequences of continued business as usual. In my opinion, these CEOs should be tried for high crimes against humanity and nature."

Needed: new taboos

Secondly, we need new social taboos against high fossil-fuel luxury. Big, powerful lives made possible by slavery once commanded social respect. The power of all men over disenfranchised women (legally chattel), was once socially admired. Society moves on, thankfully.

Now people are starting to draw the connection between big fossil fuel lifestyles and its inevitable misery for others (and ultimately themselves). As Paul Krugman recently opined in the *NY Times*, the only way we will get

Climate Chaos

Climate change is tearing apart large ecosystems all over the planet. Already the world's poorest people, who did nothing to cause it, are suffering. Anger is growing.

UN Secretary General says the Darfur conflict, which has already claimed 200,000 lives, "began as an ecological crisis, arising at least in part from climate change."

A recent UN report said climate change is a primary driver forcing an "unprecedented" rise of millions of new refugees. The President of Uganda has stated: "Africa used to suffer outside aggression in the past, the latest form of aggression is climate change...we will suffer more, yet the people emitting these greenhouse gases are not ourselves, it is others."

The Namibia UN representative said climate change is like "low-intensity biological or chemical warfare" by the wealthy emitters. "This is no academic exercise. It is a matter of life or death for my country."

Climate change has hit our area too, and it's brutal. Carbon emissions have changed our BC climate so much that our forests are now dying faster than they are growing. Our oceans have warmed so fast the marine food chain and diseases are in chaos, causing everything from collapsing salmon runs to wiped-out oyster larvae. Rivers, streams, soil moisture, flowering times, insect life cycles, and migrations are all changing helter-skelter. It will get worse for decades, even after we stop burning fossil fuels.

serious action to stop climate change "is if those who stand in the way of action come to be perceived as not just wrong but immoral." High consumption lifestyles will become a source of shame rather than status. The foundations for such social taboos already exist. Nearly all religious and civic belief systems have social prohibitions against knowingly causing suffering or destroying life.

Conversation about hyper-fossil-fuelled luxury forms of travel, automobiles, boats, imported goods, homes and lifestyles need to be replaced by bragging rights for an equally "good life" that is high in meaning, beauty, community and fun.

Needed: personal effort

Finally, we need to restore basic personal responsibility for our lives. People often say to me that "What I do won't make a difference." But that is looking at it backwards. While each of our actions is not *sufficient* to solve the prob-

Continued on Page 20

CLIMATE ACTION

↳ *The Rich continued*

lem, they are all *necessary*. There is no future “good life” for you, for me, for your kids, for anyone, in which people carry on big fossil fuelled lifestyles.

We all need to do our own math. Excellent carbon calculators exist at several places on the web. Until you know where you stand by ascertaining your own fossil fuel use and emissions, it is very difficult to gain motivation or knowledge to begin making a difference. The various lists of “what to do to save the planet” are no substitute for understanding which of your own activities cause the most damage and making informed choices.

Our family has been doing this for several years now. It is not hard. In fact we have found it a liberating and enjoyable challenge. We’ve cut our transportation and home power emissions dramatically...many decades worth of needed cuts in a few years. Along the way we’ve rediscovered many of the slower, richer joys of life and our life is just as great as it was before.

Last chance to save your good life

If, like myself, you are privileged to be in the wealthiest tier of humanity it is time to choose: either reduce your fossil-fuel use to a low level...or add your name to the “destroyers of the good life” list.

The Europeans use half the fossil fuels we do yet have an equal or higher standard of living. Surely the majority of us in Canada and USA can start by quickly cutting our emissions in half without sacrificing the good life.

But time is short. The effects of our excesses are upon us. Suffering grows. Resentment bubbles up. Ecosystems fray. Economic hardship spirals outwards.

Eventually the majority of humanity are going to realize they have a choice between being priced out of life essentials – while their environment crumbles around them – or creating a system where the global wealthy can’t just buy it all and leave them with nothing but misery and climate chaos.

Dr. Hansen states: “Today’s generations will be accountable...There is still time, but just barely. We cannot avert our eyes and pretend that we do not understand the consequences of continued business as usual.”

Are you ready? Write your legislators, get involved, do your own math, cut the big luxury sources now, talk to friends and family, change the social rules. Start today to save our good life, while we still can.



Barry Saxifrages creates websites and tracks new climate change information.

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The Planetary Party

The Wine, the Cake, and the Crumbs *by Don Malcolm*

In 650 BC, the first coins were minted in Lydia, (Asia Minor). Fifty years later Greece followed Lydia's example into what would become known today as the monetary system. From the minting of those first coins, who could have imagined the path that mankind would follow. Today it's questionable whether humanity has inherited a blessing or a curse.

In that far-off time, before the minting of those first coins, human populations didn't have the capability to seriously alter their surrounding landscapes. They were hunter-gatherers, taking advantage of whatever wild food and shelter presented. They lived their lives and died close to where they were born.

By accident, or perhaps primitive experiment, early man learned to mine ore and mint coins. Like a slow-moving trickle of water seeping from an under-ground spring, money gained in strength through time, becoming stream, becoming river, that would gouge its channel throughout humanity.

Those who possessed the ability to mine ore and mint coins quickly learned that they could control the minds and

movements of their surrounding neighbours. They also realized an opportunity to expand their sphere of influence beyond the undefined borders of their birthplace. Money became a primitive passport.

Through the ensuing ages since the minting of those first coins, money would become the "prime-mover," the goad that would quicken the pulse of humanity, the over-rider that would trample under-foot humanity's birthright. We have become as drunkards at a party. In our feverish quest for yet another bonanza, we have moved mountains, changed the course of rivers and plumbed the depths of the world's oceans for one more oil gusher. We have, again and again ravaged our forests, the very lungs of our planet. In our endeavours we have dangerously depleted the protective ozone layer that surrounds our world.

Our planetary party has become a Bacchanalia. We are leaving our inheritors the dregs and the crumbs.

Can our finite planet continue to fulfill our personal demands for monetary growth? We are approaching a critical cross-road. Will we choose closure or enlightenment?



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Your future is very much in doubt because of trying to accommodate our antiquated economic and social systems -- not just our personal futures, but now that of our planet. North America can no longer be occupied by a high energy civilization operated on a haphazard, planless basis. "We must plan for survival!"

Won't you take the time to educate yourself about the only alternative to the destructive path in which we are headed?

Investigate Technocracy's design for scientific functional governance.

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Friends of Cortes Island sponsors public education features about sustainable living for Georgia Strait and the islands – features that focus on renewable energy sources, environmentally friendly building materials, alternative sewage treatment, practical tips on “Living Green.” To receive a tax receipt, **make your donation to FOCL.**

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Localize Your Life

Our 2008 Sustainability Home Show in May was a tremendous success, with a fantastic attendance and participation of the Cortes community. The central theme of the show was Localize Your Life.

We began the show Friday evening, with Norm Harry, Delores Broten and Richard Andrews, as keynote speakers. Then our local kids presented their short films, art work, and ideas. We heard so many comments, like “these kids have restored my hope in the future,” “awesome kids,” “what a bunch of intelligent and cool kids,” “they understand these things better than many adults.”

The evening ended with a World Café session on Food, Transportation and Shelter. Many excellent and doable ideas were brought to the tables. On Saturday the public had the opportunity to browse and learn about sustainability and localization from many vendors and booths.

The ideas and enthusiasm that grew out of the Sustainability Home Show have evolved into some concrete projects. You may have read in other publications from around Van-

couver Island about Climate Change initiatives happening in many island communities. These are referred to as I-CAN, standing for Island Climate Action Network. FOCI is pleased to be involved in this network of change and has been working to put ideas suggested by our community into action.

Here are a few of the things already happening on the Cortes Island I-CAN scene:

The **Green Rider** decal: The purpose is to encourage people to ask for and to offer rides to and from the Island on the ferries. People regularly do this anyway, but it was thought that if there was a decal in the window of a vehicle as sign of “ask-me-for-a-ride,” then more people would feel comfortable asking and we could reduce both carbon emissions and ferry traffic! When someone needs to catch a ride, say coming back from Campbell River on foot, they know who to ask for the ride across Quadra. The driver will be happy to help if possible, because she/he knows their pas-

senger chooses not to use their own vehicle, thereby freeing up another available space on the ferry.

The decals are available at the FOCI office for \$2.00 (at cost) or free with your FOCI membership. Come in and get one this Friday! We recommend placing them on your drivers side rear window so they can be seen in the ferry line up.

The **Climate Action Fund**: We have opened a Community Climate Action Fund (CCAF) account at Quadra Credit Union, where any member of the community can make deposits. We can begin with a portion of the Climate Action Dividend \$100 cheque we just received. The idea is to use this Fund towards projects that will actually help us in reducing our carbon emissions, for instance, to acquire a hybrid van for public transportation or install solar panels at Manson Hall.

A further use of this Fund would be for local carbon offsets. Carbon offsets are pollution equivalents that can be purchased, thereby resulting in the reduction of CO₂ emis-

sions. There are many carbon offset programs available; when you go to a Travel Agency to book a flight, they will offer to buy offsets to compensate your flying carbon emis-

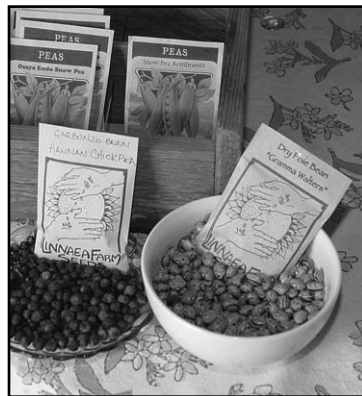
sions. Many of these programs will implement renewable energy systems in poor countries. Our CCAF will provide the opportunity to purchase offsets and invest this money in local programs.

FOCI recognizes that the best way to actually reduce our carbon emissions is by engaging in activities that will reduce carbon emissions!

Overall, the Climate Action Fund will provide us with the opportunity to invest towards climate change work in our community. Every dollar we deposit in this account represents a future reduction of carbon emissions.

Have a great fall, everyone. If you travelled to get here this summer, consider making an offering to the “Community Climate Action Fund” at the Quadra Credit Union and help keep Cortes Island a beautiful and inspiring place to visit.

—Sarah Downey and Norberto Rodriguez dela Vega



Cuba: Life Beyond the Empire Food Beyond Oil

by Janine Bandcroft

On November 8th 2006, for the 15th consecutive year, 183 nations within the UN General Assembly voted to end the US blockade against Cuba. Only four nations voted to maintain the embargo, which causes shortages of food, medicine, and other important supplies for eleven million people – the Marshall Islands, Palau, Israel, and the USA.

For 19 years the Pastors for Peace, an ecumenical agency whose mission is to help forward the struggles of oppressed peoples for justice and self-determination, have defied this immoral embargo, transporting humanitarian aid, international citizens, and Americans (whose government forbids them otherwise), to Cuba. In the summer of 2008 I joined them.

It didn't take me long to realize that, despite my 20 years of activism and 10 years of university, in Cuba I knew nothing. I knew nothing about the real effects of the embargo, or about the Cuban people or their lifestyles; I knew nothing about their cultural or politi-

cal history, or about the impacts of the revolution that I have understood only intellectually and philosophically.

Arriving in Cuba was like landing on an alien planet – whereas in America and Canada my work as an activist is often misinterpreted, regarded as unusual and pointless, in Cuba I was embraced

as a life-long friend returning home. We Caravanistas were welcomed with musicians, speeches from dignitaries, samplings of rum, and a small army of media documenting our arrival. At our residences we were embraced with open arms, delightfully fed, and later taken to a celebration hosted by decidedly self-assured women who read revolutionary poetry and introduced the Cuban national choir and other renowned musicians.

There are no corporate billboards in Cuba. Instead, large signs immortalize inspiring messages: *La moral de la revolución está tan alta como las estrellas* – The moral of the revolution is as high as the stars (Fidel Castro); *La arcilla fundamental de nuestra obra, es la juventud* – The fundamental building blocks of the new work are the youth (Che Guevara); *Revolución es igualdad y libertad plenas* – Revolution is complete equality and liberty.

Prior to their revolution, most Cubans lived in abject poverty. Fulgencio Batista ruled over a hedonistic gambling empire that returned millions to the already wealthy. The United Fruit Company had expropriated 330,000 acres of arable land and controlled Cuba's sugar operations. Illiteracy and hunger were rampant. The people's revolution changed all that – while Cubans are still 'poor' economically, they are healthy and fed and there are no millionaires. Cuba's national government distributes personal wealth through a guaranteed income, and social wealth through cradle to grave health care, plus education through university.

After a few busy days in Havana – meeting with government officials, religious leaders, and activists working to free the Cuban Five* – we Caravanistas journeyed to one of the provinces. I chose Sancti Spiritus, and it was there that I learned and experienced something of Cuba's agricultural regime.

Yes, they've seen many changes through the years. The transformation of the Soviet Union meant Cuba lost her only trading partners, and was launched into a time known as the "special period." They were forced to re-consider many things, including their agricultural practices.

Every farmer has a government contract which guarantees purchase of their crops. Some of these are exported – coffee, for example, or mangoes and guava which are sent to factories for baby food or packaged juice production.

One day, after an emotional introduction to four combatants who fought alongside Che Guevara in the surrounding jungle, after placing flowers at a commemorative graveyard and walking through a small village while revolutionary songs blared from our jeep escort, we visited a rather large co-operative farm in the municipality of Fomento.



With warm greetings, we were told that this co-operative was created when local landowners pooled their land and resources to facilitate increased productivity. The co-op's founders are now retired, but they continue to live in the neighbourhood and reap the benefits of the harvest. There is also a resident doctor (recently returned from work in Bolivia and Venezuela), a school, a grocery store, and a social club for cultural, political, and sports activities.

Over 52 members belong to this co-operative, many in attendance at our feast. For the omnivores there was a roast pig, but luckily we vegans and vegetarians were blessed with *crisitanos y moros* (rice and beans), roast potatoes, the yummiest carrots I've ever had, cucumber, corn on the cob, squash, green beans, spicy radishes, and enormous amounts of fruit – mangoes, papaya, bananas.

After we were fed, the Cuban agriculturalists willingly answered our many questions, with help from Ariel, our trusty interpreter.

Yes, they've seen many changes through the years. The transformation of the Soviet Union meant Cuba lost her only trading partners, and was launched into a time known as the "special period." They were forced to re-consider many things, including their agricultural practices. Though it was very difficult at the time, the special period made them stronger and more united. Organic agriculture is better, the Cubans understand, not only for the earth but also for human health.

I asked whether corporations like Monsanto, who are attempting to control the world's seed stock through genetic engineering, have any influence. Not on this farm, I was told, where co-operative owners control their own seeds and distribute them throughout the province.

The following day we Caravanistas traveled to a co-operative restaurant in the district of Trinidad. As always, we were warmly greeted and more than adequately fed. Several Cuban farmers were represented at this

Altogether
there are 20 co-operatives in Trinidad. The main overall objective is to produce food for the people.



gathering, also organizers from other local co-operatives, and a local musical ensemble.

We learned that this centre was created through the people's own initiative, intended to provide food for the people. Whereas yesterday's co-op experience was with a CCS (Cooperatives of Credit and Services), this one is part of a CPA (Agricultural Production

Cooperative). While a CCS is a collective of farmers who pool their resources, a CPA is comprised of independent farmers who work collaboratively for the purposes of commercializing production.

Every farmer, regardless of whether they're connected to the CPA or the CCS, has a government contract which guarantees purchase of their crops. Some of these are exported – coffee, for example, or mangoes and guava which are sent to factories for baby food or packaged juice production. Altogether there are 20 co-operatives in Trinidad, and the Cubans made it clear that the two methods of production are well connected – the main overall objective is to produce food for the people.

There was definitely a strong feeling of community and co-operation emanating from these folk, and a sense of devotion to their revolution. One Havana Cuban who traveled with us commented on their generosity – a trait he doesn't always find in the city. When asked what they enjoy most about their work, one woman said "To know we are able to provide for so many others, to help the national economy by producing grains and milk and other items that the government would otherwise have to import."

The Cubans have a lot to teach us about life beyond the empire, about how to live your values and survive, even when the cards seem determinedly stacked against you.



See www.PastorsForPeace.org

The Cuban Five (FreeTheFive.org) were imprisoned in the USA a decade ago, after they infiltrated Miami-based anti-Cuban terrorist organizations for the Cuban government.

Janine Bandcroft is founder and coordinator of the *Victoria Street Newz* (relativenewz.ca), a radio programmer with CFUV and, when there's time, she publishes the *Left Coast* activist events lists.



Transition to Resilient Towns

Reviews by Norberto Rodriguez

The Transition Handbook: From Oil Dependency To Local Resilience, Rob Hopkins, Green Books Ltd., 2008. ISBN 978 1 900322 188

Overall I really liked this book, primarily because it is about solutions. Author Rob Hopkins has given us a practical tool to help any community, town, or island set up an action plan to make the transition to sustainability, or as he calls it, to local resilience.

Hopkins takes both peak oil and climate change as intertwined threats that we need to face together. There are tons of books addressing one or the other problem, but very few address both as a single threat.

The focal point of the book is resilience, referring to the ability of a system, a community, a town, to hold together and maintain their ability to function in the face of change and shocks from the outside.

Hopkins makes the point that resilience goes far beyond sustainability. For instance, a very good recycling program in a community will help the environment, but collecting and sending away those recycled products will not add much to the community's ability to respond to climate change shocks. In a similar way, planting trees to create community woodlands may help lock up carbon and will be very good for biodiversity, but it doesn't go far enough. However, the planting of well-designed food forests, to grow local food and encourage a local economy, does foster resilience.

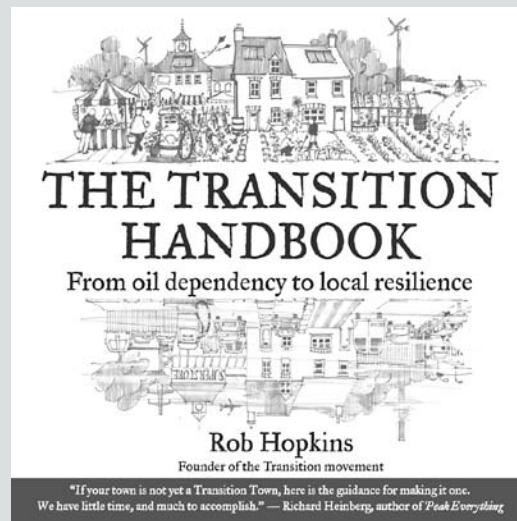
Permaculture and Re-localization

The two main elements that Hopkins uses as a base for this transition to resilience are permaculture principles and re-localization concepts.

Rob has been teaching permaculture for ten years and has tailored the principles from David Holmgren's book *Permaculture: Principles and Pathways Beyond Sustainability* for the transition model.

Although trying to explain the meaning of permaculture in a single sentence is very difficult, Hopkins says that "...in essence, it is a design system for the creation of sustainable human settlements. Permaculture can be thought of as the design 'glue' and ethical foundations we use to underpin Transition work, to stick together all the elements."

Re-localization is basically a solution to the problem of globalization. It aims to rebuild communities based on the local production of food, energy, and goods. Sometimes, this process addresses the local development of currency,



governance and culture. In an even broader approach, re-localization can make a firm commitment to reduce consumption in order to improve social and environmental conditions in a community.

Hopkins uses the following definition from a re-localization group in the Bay Area in California: "the process by which a region, county, city, or even neighborhood frees itself from an unhealthy dependence on the global economy and looks inward to produce a significant portion of the goods, services, food, and energy it consumes from its local endowment of financial, natural, and human capital."

The transition process described in the book is bottom-up, proactive, and community-led. Each community may adapt it to their transition needs, according to its scale, to its capabilities and resources.

Head, Heart, Hands

The book is organized in three main parts: The Head, The Heart and The Hands. In The Head section, Hopkins reviews the meaning of peak oil and climate change, why we need to see them as intertwined threats and why we need to take the same approach to look for solutions. He presents a set of possible scenarios for life beyond these threats, from adaptation to evolution to collapse.

The second part, The Heart, is about the fundamental need for a positive vision to start the transition process. Hopkins talks about how and why peak oil and climate change are causing so much distress, then he talks about the psychology of change, why are we so reluctant to change and gives us a couple of change models. He finishes by reviewing the Kinsale Energy Descent Action Plan, the starting point for the entire Transition movement.

The Hands section is where vision turns into reality. Hopkins presents the details of the Transition model, how to start such a process, the twelve steps in the process, permaculture principles, possible obstacles to avoid, and much more. He also reviews a few actual cases where the Transition model has been used.

Tools for Transition

Integrated throughout the book, Hopkins provides twelve “Tools for Transition” with simple, practical ideas and exercises.

The whole Transition model idea began in 2004, when Hopkins was teaching permaculture in Kinsale, Ireland. One day, as part of the course, Rob showed the film *The End of Suburbia*, followed by a talk from Dr Colin Campbell of the Association for the Study of Peak Oil.

The impact on both the students and Rob was huge, and they started to think about using permaculture concepts to plan for a transition to a lower-energy future. Working together, about one year later they delivered the report *Kinsale 2021: An Energy Descent Action Plan (EDAP)*.

In late 2005, Hopkins moved to Totnes, Devon, where he began the Transition Town Totnes project, based on the story of Kinsale’s EDAP.


He then developed the Transition Initiative model and the rest is history. Now there are more than 35 formal initiatives in the UK, from small towns and villages to islands, cities and peninsulas. Over 500 groups are at the earlier steps of the process around the world.

There is no doubt anymore that climate change and peak oil will create disasters around the world. We have already seen many of them. These threats are giving me many sleepless nights; the problems seem so gigantic that I feel totally useless.

I truly believe the ideas provided in this book will help us develop a positive vision and make the transition to better, resilient communities.



Plan C: Community Survival Strategies for Peak Oil and Climate Change, Pat Murphy. New Society Publishers, 2008. ISBN 978-0-86571-607-0.



Pat Murphy is the Executive Director of Community Solutions and the co-producer of the wonderful film, “Power of Community: How Cuba Survived Peak Oil.”

Continued on Page 22

Communities in Transition

Gabriola Island

Islanders have donated their \$100 BC Carbon Tax cheque and set up committees to do the necessary feasibility planning to get a bus for the island. The ‘bus’ may utilize the local taxi service, and will definitely require help from senior governments.

—*Flying Shingle, June 2008*

Okotoks Alberta

Okotoks is way ahead of the ball on sustainability planning. Hit by a wave of rapid growth from an expanding Calgary, the foothills city took steps in 1998 to establish growth targets linked to infrastructure development and environmental carrying capacity, in relation to the Sheep River, where it gets its drinking water and disposes its effluent. Driven by the community, Okotoks intentionally choose to live within the carrying capacity of the Sheep River watershed.

Carrying capacity (ability to draw water, infuse treated effluent based on provincial regulations) was identified as approximately 30,000 people. A build-out municipal boundary was established, with a comprehensive set of targets and initiatives identified to ensure build-out population could be reached in an environmentally, economically, socially, and fiscally healthy way. Hence the articulation of four pillars of Sustainable Okotoks that continue to motivate and drive action: 1) Environmental stewardship; 2) Economic Opportunity; 3) Social Conscience; and 4) Fiscal Responsibility. These pillars are expressed in measured goals such as affordable housing and jobs within the community. Okotokians have expressed as a desire to maintain the plan in three Community Surveys conducted in the past 8 years.

—www.okotoks.ca/sustainable/overview.asp

Oak Bay, BC

Oak Bay has taken the small but mighty step of allowing clotheslines in their yards. Since the clothesline ban was a tradition in this gentele neighbourhood, making the change qualifies as a step into the future,

Victoria BC

In July, the city’s environment committee has recommended the development of slow lanes to enable the use of electric vehicles, especially bicycles and scooters. It’s not a done deal yet, but the first step to getting there is talking about the destination.

⇐ *Resiliency continued*

For several years Pat has been writing very interesting reports published at the Community Solutions website. In this book he has combined a few of those reports into a reference, or path, to sustainability. He says our main problems are cultural, not technical, nor scientific.

The beauty is that any community may begin today, without waiting for the government or the big corporations to lead, nor for new "green technologies" to solve our problems.

The key action he advocates is to curtail, meaning buying less, using less, wanting less and wasting less. The key platform or stage is the community. We need to change from being consumers to curtailers, starting with living in community, acting in community. He presents many practical details for curtailing our energy use, transportation, food, fuel consumption, housing and more.

Finally, in Part III, Pat Murphy presents the cultural context he suggests we need to create in order to survive. He presents some personal steps to breaking our addiction to machines and to media, and reviews aspects of Localization and ideas on community renewal and revival.

It seems to me the bottom line in his book is that the American Way of Life is no longer a valid option, and that a change to a different way of living – a low energy way – is not negotiable.

You can visit the Community Solution website at <http://www.communitysolution.org>

Path to Resiliency

I can envision a combination of Plan C and Transition Initiatives this way:

- 1) Use the Transition Initiatives approach as the model, or process, to set a community plan
- 2) Use permaculture as the framework
- 3) The main actions are: curtail all consumerism, localize our lives, food, actions, share things, help others
- 4) The stage is the local community.

The beauty is that any community may begin today, without waiting for the government or the big corporations to lead, nor for new "green technologies" to solve our problems. It makes lots of sense. No big science involved. It mainly requires our willingness for real change!

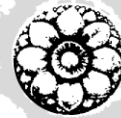
The Path to Resiliency is clear: curtailing our consumerism and restoring our community values. Let's do it!



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Wild Times



Outstanding Clayoquot

by Joe Foy

The black bear was busy with something on the beach, nosing around the tangle of seaweed and shells that formed the high tide mark. I eyeballed the bear for a moment to see if it was interested in me, but aside from a sideways glance every now and then, it generally minded its own business. Overhead an eagle wheeled by, then landed in the top of a big Sitka spruce. The surf kept up that same slow steady beat like I'd heard on wide open Pacific shores from California to Mexico to Hawaii to the Philippines. It was near the end of another near perfect day in outstanding Clayoquot Sound.

Only minutes before, two friends and I had hopped out of a herring skiff to wade ashore at Hesquiat Point, located at the remote north-western edge of Clayoquot. We were there to check out reports of logging road construction that was threatening to breach a pristine old growth valley known as Hesquiat Point Creek.

News of the road building had recently made the front page of the papers. This was a real big deal for a couple of reasons. Since the massive environmental protests in Clayoquot Sound back in 1993 no logging company had logged in any of Clayoquot's pristine valleys. Not one.

One of the main logging companies in Clayoquot is Iisaak Forest Resources Ltd. It is entirely owned by the First Nations of Clayoquot Sound. Iisaak actually has a written agreement with several environmental groups that the company will not log in Clayoquot Sound's pristine valleys, and for a decade and a half that promise has been kept.

Which brings us to the second reason that the new logging road construction was such a big deal. Recently a second company was created in Clayoquot Sound, known as Mamook/Coulson. This company is a partnership between a Port Alberni based logging company and the First Nations of Clayoquot Sound. It was Mamook/Coulson who had be-

FORESTS

gun to fall trees in a line aimed at Hesquiat Point Creek, in preparation for building a logging road.

The Friends of Clayoquot Sound quickly informed their allies, including Greenpeace, Forest Ethics, Sierra Club and the Wilderness Committee. A joint phone call was put into Mamook/Coulson explaining the consequences of sparking another war in the woods – and the tree falling was temporarily halted. As I write this Wild Times report, an uneasy truce holds in Clayoquot Sound, while the enviro groups await a face to face meeting with the Chiefs.

While it is easy to see the threats in this surprising turn of events – after all if Hesquiat Point Creek falls to the chainsaw, what hope do the other pristine valleys of Clayoquot have? It is also possible to see the opportunities.

A lot has changed since the protests back in '93. Recent land use decisions in the Great Bear Rainforest, located on the mainland coast north of Vancouver Island, have worked to strengthen First Nations governance over their territories, protect pristine areas, and bring much needed investment and economic development dollars into First Nations communities.

The ingredients of such a solution are:

1. First Nations cooperative land use planning; and
2. BC government involvement in brokering an agreement and investing in community development. Such government investment can actually attract other conservation minded investment as well.

The good news is that in the southeast portion of Clayoquot Sound at least, the First Nations cooperative land use planning has already begun. The Tla o qui aht First Nation have been collecting information from their members and non-Native neighbours to put together a proposal that provides for economic development while protecting pristine areas in a huge swath of their territory.

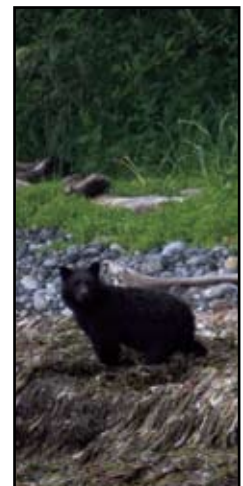
But so far the provincial government has not stepped up to provide the support or investment that a solution would require.

Back at Hesquiat Point Creek my friends and I hiked up to where a line of ancient forest had been laid low. It was a sad sight, and a stark reminder that the Clayoquot Sound issue is still outstanding. How about it Mr. Premier?



Joe Foy is Campaign Director for the Wilderness Committee, Canada's largest citizen-funded membership-based wilderness preservation organization, which has 28,000 members from coast to coast.

Photos by Wilderness Committee



Cracking Out the Cash

A Petroleum Refiner Primer

by Arthur Caldicott

You know those coin sorters – a set of stacked trays punched with holes. Different sized holes for different coins. You toss your jar of coins in the top tray, shake them, and everything falls through except twoonies, the biggest coin. All the remaining coins fall through the holes in the next tray, except loonies, then quarters, nickels, dimes, pennies? Oops, pennies, dimes.

That's kind of how petroleum is refined. Of course, it is more complicated than sorting coins. Distillation, cracking and catalyzing are key parts of the process. But at the end it's the same thing: bags of money.

We're talking about hydrocarbons, that is, substances with molecules made up of hydrogen and carbon atoms.

These atoms combine and can be combined in precisely a gazillion different ways. In a petroleum refinery the valuable hydrocarbons are removed. What remains is then broken up and recombined into other valuable hydrocarbons. At the end, virtually all the hydrogen and carbon atoms that went into the refinery in the beginning, end up as, well, bags of money.

Number of Carbon Atoms

Fundamental properties of a hydrocarbon begin with the number of carbon atoms in the molecule.

That number determines the weight, state (gas, liquid, or solid) and boiling point of the fuel.

To illustrate, the lightest hydrocarbon, methane, has one carbon atom. Its molecular formula is CH_4 . It is normally a gas, half the time referred to as natural gas, and it boils –

changes from a liquid (or liquefied natural gas or LNG) to a gas at -160°C . Ethane has two carbon atoms: C_2H_6 . Propane has three: C_3H_8 .

Fractional Distillation

Specific hydrocarbons are separated out of crude oil by the process of distillation, separating the gases from the liquids at different temperatures.

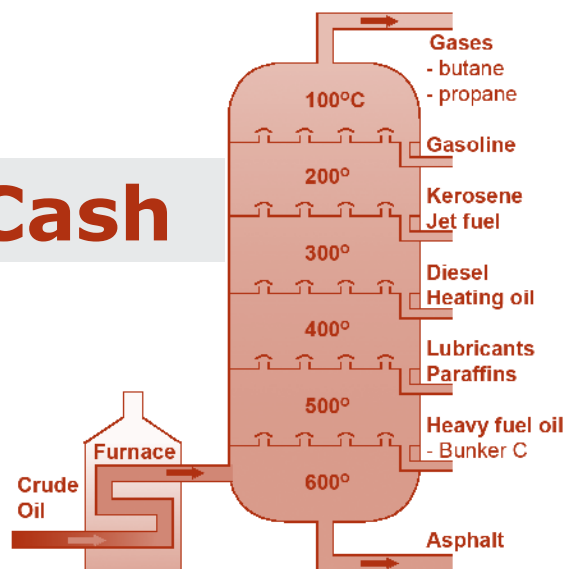
The fractionating column is a tall cylinder, cooler at the top, hottest at the bottom. As the hot hydrocarbon vapours rise through the cooling tower, they condense into liquids at the level where the temperature is the boiling point for that hydrocarbon. The engineers have designed the tower with collecting trays at all the right levels. As these fractions condense out, they are drawn off, and more heated crude is introduced at the bottom.

Gasoline is the mix or fractions of hydrocarbons between 5 and 12 carbon atoms. Kerosene has 12 to 15 carbon atoms.

The heavier hydrocarbons could also be fractionally distilled out, for low value tar or asphalt. But refineries can crack, or break, the remaining heavy hydrocarbons into lighter molecules with fewer carbon atoms, and thereby convert a low value substance into something of much higher value.

The processes in a refinery don't end here. We can increase the octane level and improve the gasoline in other ways by messing with the molecular bonds, and the molecular structure, of the fuel in a catalytic reformer unit.

Highly engineered fuels come out of modern refineries, as do other



products and byproducts which are used in innumerable petrochemical processes to create fibres like nylon and polyester, plastics, detergents and solvents.

Bitumen from the Tar Sands

Bitumen from Alberta's tar sands is on the heaviest end of the hydrocarbon scale. Once the bitumen is separated from the sand and water, it is upgraded to a synthetic crude oil. Upgrading involves the same processes but starts at higher temperatures – 500°C – and includes coking, a thermal cracking process which removes carbon while it breaks the heavy hydrocarbons into lighter forms. Coke can be gasified and used in the upgrading and refining process. It is a combustible substance similar to coal, and much of Alberta's coke output ends up in Japan, though even more is stockpiled.

Other parts of bitumen upgrading include distillation, catalytic conversions and hydrotreating which removes sulphur and nitrogen and adds hydrogen to molecules.



Information for this article was obtained from *Wikipedia* and other online sources. GHG emissions are from www.pollutionwatch.org.

Carbon Capture and Storage

Salvation or Pipe Dream?

by Delores Broten

Carbon capture and storage is the latest trendy “solution” to the impacts of burning oil and gas. Politicians and many environmental organizations around the world and in Canada are banking on it. The idea is to capture carbon dioxide (CO₂) from refineries and coal burning power plants, and pipe it to geological deposits where it will be injected underground and stored forever. To some extent, this is not a new trick. For decades the oil and gas industry has used carbon dioxide as a “flush” to pressurize older fields and force the remaining deposits to the well head. But in those cases the industry is not even trying to lock up the gas, which eventually eats away at the concrete well seals. It’s the permanent storage part that may be tricky, since so far only two full scale experimental sites have actually tried to keep the CO₂ locked away.

The capturing part isn’t going to be as easy as writing a political speech either. “Clean Coal” is based on creating synthetic gas from the coal in order to capture sulphur compounds, nitrogen oxides, mercury and other pollutants, as well as the CO₂. However, a successful and economical operating model remains as elusive as the Grail, despite several attempts and significant subsidies.

Getting the captured gas from the industrial facilities to the reburial sites will also be cumbersome and expensive, since it would involve construction of another massive series of pipelines with all the attendant emissions and expenses. The Energy Justice Network, in their excellent fact sheet, “The Myth of Clean Coal,” notes that if 60% of the CO₂ were to be captured just from the almost 500

coal fired power plants in the US, and compressed to a liquid for underground injection, “its volume would equal the US oil consumption of 20 million barrels a day.”

Then there is the issue of where and how to bury the CO₂. This is where the two experiments mentioned come in. Since 1996, the Norwegian company, Statoil, has been injecting 1 million tonnes of CO₂ a year underwater into deep saline aquifers at the Sleipner offshore gas field in the North Sea without leakage. Statoil has constructed special plants at the site to capture the CO₂ from the gas as it is pumped so it does not need to pipe the CO₂ to the site. The other ongoing experiment, at EnCana’s Weyburn Saskatchewan site, pipes CO₂ from North Dakota for injection into the depleted oil field. So far about 5 million tonnes has been disposed of and is staying safely underground without leaking.

This is just as well, since the CO₂ is mixed with 3.5% hydrogen sulphide and would be extremely toxic if it escaped. To put it all in perspective, one million tons represents one third of the carbon dioxide from one large coal power plant for a year.

There are some tried and true carbon storage methods. The deep sea deep well injection for operating offshore oil and gas fields seems a practical option. Soil enhancement with charcoal, first discovered in studying agriculture in the Amazon, promises to boost yields, retain nutrients in the soil, and sequester carbon, as does organic farming in general. And then, of course, there are all the original “carbon sinks” of functional ecosystems, from peat bogs to coral reefs to old growth forests. But that’s not where the politicians are putting their money, not yet.



Over a Barrel Over NAFTA

NAFTA dictates Canada’s government cannot reduce the percentage of oil and gas we now export to the United States even in times of domestic shortages. A report released in May by the Parkland Institute and the Canadian Centre for Policy Alternatives (CCPA) says the only solution is for Canada to pull out of NAFTA’s “proportionality” clause.

Over a Barrel: Exiting from NAFTA’s Proportionality Clause highlights Canada’s energy insecurity resulting from diminished conventional oil and gas reserves, our need to import 49% of the oil we consume, and the fact that we export two thirds of our oil and 60% of our gas to the US. Even Alberta only has 8 years of established natural gas reserves remaining.

“We looked at whether Canada could reduce exports for the sake of conservation or environmental policy, or whether we could prioritize our dwindling natural gas reserves for domestic value-added production, or even for household heating. We cannot. We cannot even guarantee eastern Canadians access to western crude,” says John Dillon, economic justice researcher at KAIROS and co-author of the report.

—*Over a Barrel: Exiting from NAFTA’s Proportionality Clause is available free online from the Parkland Institute and CCPA. CCPA, May 28, 2008*

Tar Sands Tragedy

Compiled by Delores Broten

Current production – 1.2 million barrels a day, and growing

Current US consumption – 20.7 million barrels per day

Proven reserves - 175 billion barrels and likely much more (second only to Saudi Arabia)

Current Cost of Production:

Water – 2 to 4 barrels per barrel of oil

Natural gas – 750 cubic feet per barrel of oil

Greenhouse gas emissions – 5 times more than conventional oil

Toxics released downstream – mercury, arsenic, and polycyclic aromatic hydrocarbons (PAHs).

Chance of reclamation with current technology – Virtually none

Air emissions – 100 tonnes of benzene from the waste ponds and growing; Other volatile organic compounds (VOCs) – 63,000 tonnes in 2006, growing to 200,000 tonnes per year by 2015; 158,000 tonnes per year of sulphur oxides and 76,000 tonnes per year of nitrous oxides

Carbon Dioxide – about 40 million tonnes for 2007, and growing up to 142 million by 2020

Sources: Globe & Mail, Shifting Sands, January 2008; Canada's Toxic Tar Sands: The Most Destructive Project on Earth, Environmental Defence, February 2008; Canada's Highway to Hell, OnEarth, Fall 2007; Energy Information Association, www.eia.doe.gov/basics/quicoil.html.

Photo by Garth Lenz



Stupid to the Last Drop

Stupid to the Last Drop: How Alberta Is Bringing Environmental Armageddon to Canada (And Doesn't Seem to Care), William Marsden. Knopf Canada, October 2007, 256 pgs, \$29.95. ISBN: 978-0-676-97913-8

Reviewed by Arthur Caldicott

Stupid to the Last Drop begins with an intense Saudi Arabian sunset inspiring the idea to nuke the oil out of Alberta, and ends anticipating our future as energy scavengers, picking through the tailings of earlier energy booms for another hydrocarbon fix.

It's all about Alberta, and mainly about the tar sands. Marsden moves a lot, picking up the global energy story from many places – Iraq, Kazakhstan, Russia, Campbell River, Newfoundland, China, Venezuela, and of course, Washington DC. Each location provides a different perspective, and informs his tar sands story in a useful way.

Alberta's environmental Armageddon is no secret. But it may surprise readers to discover how persistently the Alberta and Canadian governments have targeted those with the courage to contradict the orthodoxy. This theme leaks out of chapters like sour gas at a leaky well-head.

These apparent enemies of the state include David

Schindler, for his constant alarms about the crisis in Alberta's water quantity and quality; David Hughes, a petroleum geologist who says the tar sands can't produce anything close to the inflated promises and that Alberta's days of plenty are numbered; and Dr. John O'Connor, a family physician, in trouble for reporting an abnormally high incidence of cancers and other diseases, especially in Fort Chipewyan, downstream from the tar sands mining sites.

As for climate change, industry and government are hoping carbon sequestration – burying all those greenhouse gases underground – will be a panacea. Problem is, says Marsden, North America's first big experiment near Weyburn may be springing leaks.

Worse, Marsden suggests that methane and other toxic gases are leaking everywhere – from abandoned wells, from wells that aren't abandoned, from coalbed methane and shale gas activities. The US Environmental Protection Agency says that one quarter of methane emissions to the atmosphere are escaping from wells and pipelines. In one Alberta site, 80% of wells are leaking.

It's a great book: bad news from cover to cover.

Gripes? The book has no maps, a lousy index, and photographs that look like they were faxed to the publisher. Geography and geology are central to the story in "Stupid" – without maps, it's well, kind of, how can I put this, disorienting.



Alberta Tar Sands

A crude awakening

Photo by Garth Lenz



Current production:
1.2 million barrels of oil a day,
and growing
Boreal forest consumed:
42,000 hectares and growing
Toxic tailings ponds:
5,000 hectares and growing

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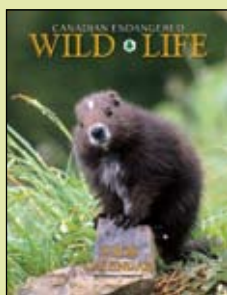
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