



CLIMATE CHANGE: EXPLORING REGIONAL SOLUTIONS

April 23 -24, 2007 Nelson B.C.

Climate Change Symposium Exploring Regional Solutions

April 23-24, 2007 Selkirk College, Nelson, BC

Hosted by
West Kootenay EcoSociety
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WEST KOOTENAY ECOSOCIETY PRESENTS

CLIMATE CHANGE: EXPLORING REGIONAL SOLUTIONS

APRIL 23
The Capitol Theatre
7:00pm - 9:30pm
10-120 sliding scale

APRIL 24
Mary Hall, Selkirk College
8:30am - 5:00pm
\$50. Registration required
Includes lunch & refreshments

FEATURED SPEAKERS

GUY DAUNCEY
Author of *Green Swamps*
BC Minister of Global Climate Change

DR. ERIC STEIG
Assistant Professor
University of Washington

DR. LORI DANIELS
Professor of Geography
University of British Columbia

DR. JEREMY LITTELL
Research Scientist
US Climate Impact Group,
University of Washington

AMY SEABROOKE
National for Climate Protection,
Institute of Land Use Management

*It's time for Nelson and Region to
join the fight against climate change.
Come and be part of the solution.*

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Table of Contents

Agenda	2
Summary.....	4
Featured Speakers.....	6
Discussion Groups – Looking for Solutions.....	17
ENERGY SOLUTIONS	17
Detailed Discussions: Energy	19
LIFESTYLE SOLUTIONS.....	21
Detailed Discussions: Lifestyle.....	25
TRANSPORTATION SOLUTIONS.....	28
Detailed Discussions: Transportation	30

Agenda

Schedule of Events

Monday, April 23 @ The Capitol Theatre, Nelson

- 6:30pm Doors Open
- 7:00pm Introduction
Dr. Mel Reasoner, West Kootenay EcoSociety
- 7:15pm The scientific consensus
Dr. Eric Steig, University of Washington
- 8:05pm Question period
- 8:20pm Solutions
Guy Dauncey, President, BC Sustainable Energy Association
- 9:10pm Question period
- 9:45pm End of Evening

Book signing with Guy Dauncey, author of *Stormy Weather: 101 Solutions to Global Climate Change* at the Otter Books table in the lobby of the Capitol Theatre.

Tuesday, April 24 @ Mary Hall, Selkirk College, Nelson

- 8:00am Doors open
- 8:30am Welcome & introduction
Mel Reasoner, West Kootenay EcoSociety



Impacts: What climate change will mean for Nelson & the Regional District.

Chaired by Dr. Mel Reasoner, West Kootenay EcoSociety

- 8:40am Wildfire and climate change: the potential consequences of climate change in BC's inland temperate rainforest.
Dr. Lori Daniels, University of British Columbia
- 9:00am Question period
- 9:15am Climate change and water issues in the Columbia Basin
Dr. Jeremy Littell, Climate Impacts Group, University of Washington
- 9:35am Question period
- 9:50 – 10:20 Coffee break

How Nelson & the RDCK can reduce greenhouse gas emissions and save money

Chaired by Matt Lowe, West Kootenay EcoSociety

- 10:30am Partners for Climate Protection
Amy Seabrooke, Federation of Canadian Municipalities
- 11:00am Question period

Presentations from communities & organizations implementing sustainable energy strategies

- 11:10am European Centre for Renewable Energy, Güssing, Austria
Peter Vadasz, Mayor of Güssing & Werner Rauscher, CEO European Centre of Renewable Energy, Güssing
- 11:35am Municipality of Whistler, BC
Tim Wake, City Councilor, Whistler, BC
- 12:00 – 1:00 Lunch Break
- 1:00pm Nakusp Energy Corporation
Ray Green
- 1:15pm Selkirk College
Carol Retzlaff & Angus Graeme
- 1:30pm Regional District of Central Kootenay
Al Dawson & Andy Shadrack, RDCK Councilors



CLIMATE CHANGE: EXPLORING REGIONAL SOLUTIONS

April 23 -24, 2007 Nelson B.C.

1:45pm Town of Okotoks, Alberta
Richard Quail, Municipal Manager, Okotoks Alberta

2:00 – 2:10 Brief Intermission

Breakout Groups: Exploring Strategies For Nelson & RDCK

Each group will address one of the three primary themes: Energy, Transportation and Lifestyle. Within each group, participants will address crosscutting issues associated with engaging Governments and the public. The primary goal is to generate ideas that make sense for a sustainable energy future for Nelson and RDCK.

2:10pm Format and Goals for Breakout Groups
Dr. Mel Reasoner, West Kootenay EcoSociety

Group 1) ENERGY – includes, but not limited to, construction & retrofitting, hydroelectricity, biomass, geothermal, solar and wind.

Group 2) TRANSPORTATION – includes, but not limited to, public transit, City & RDCK vehicle fleets, recreation vehicles, facilitating human powered transportation and carbon offsets.

Group 3) LIFESTYLE – includes, but not limited to, choices people can make around the issues of food, waste, recreation, commuting, housing and consumption.

Synthesis: Reports from Breakout Groups

4:10pm Facilitator from each group will present a compilation of ideas that will be included in a workshop report.

4:45pm Closing remarks and next steps
Mel Reasoner, West Kootenay EcoSociety

5:00pm End of Day

Summary

Climate Change: Exploring Regional Solutions was organized for the purpose of informing residents and elected officials and staff from the City of Nelson and Regional District of Central Kootenay (RDCK) about the global scientific position on the issue of climate change while inspiring them with numerous examples of communities and organizations that are already reducing greenhouse gas (GHG) emissions and improving energy efficiency. A recurring theme that surfaced in these presentations was that improvements in energy efficiency invariably result in economic benefits. We hoped that by increasing awareness around the problem of climate change, and by showcasing economically viable solutions, we would encourage the City of Nelson and the RDCK to join the Federation of Canadian Municipalities' Partners for Climate Protection (PCP) Program. Meaningful engagement in the PCP Program will set the region on a clear path toward addressing



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climate change issues and bring the City and Regional District closer in line with Provincial targets for reduced GHG emissions.

The Symposium opened with two Keynote presentations that focused on the science of climate change and on solutions. Dr. Eric Steig, a paleoclimatologist, presented an overview of the broad scientific consensus on the problem of global warming. In records that date back more than 650,000 years, research has revealed that both carbon dioxide levels and average global temperature are closely linked and both have been dramatically increasing since the industrial revolution. If left unchecked, CO₂ concentrations could double or triple before the end of the Century, resulting in serious environmental consequences. Guy Dauncey, President of the BC Sustainable Energy Association, presented a plethora of solutions for climate change from communities and organizations that are embracing the sustainable path. Ideas included carbon neutral buildings, electric cars, video conferencing, tax breaks, incentives for lowering carbon emissions, and much more.

Further scientific presentations were made by biogeography professor, Dr. Lori Daniels, and research scientist, Dr. Jeremy Littell, on the anticipated consequences of climate change on the forests and water systems of our region.

Amy Seabrooke, of the Canadian Federation of Municipalities' Partners for Climate Protection Program, described the nation-wide 5 step municipal program for inventorying and reducing GHG emissions to levels that conform with Canada's Kyoto responsibilities.

The remainder of presenters included local elected officials, municipal representatives from Canada and abroad, as well as local community organizations that are engaged in the process of reducing GHG emissions and improving energy efficiency. Inspiring accounts were shared about both the process of bringing communities together around the concept of sustainable energy and the ways and means that numerous communities and organizations are already employing to address climate change while stimulating their economies. Presentations were made by representatives from the Nakusp Energy Corporation, the Regional District of Central Kootenay, Selkirk College, and the municipalities of Okotoks, Alberta, Whistler, BC, and Güssing, Austria.

Proceedings concluded with a participant brainstorming session on the topics of Energy, Lifestyle, and Transportation as they relate to climate change solutions. Key messages that emerged from the sessions are as follows. **Energy:** **i.** emphasize energy conservation **ii.** educate the public about the potentials for saving money by saving energy **iii.** support energy conservation through financial incentives and disincentives **iv.** develop green energy sources as models **v.** sell Nelson as a "green" city **and vi.** involve the public and municipal governments in energy conservation. **Lifestyle:** **i.** create regional composting **ii.** educate the public about lifestyle components for sustainability **iii.** restructure the tax system to encourage sustainable change **iv.** educate citizens and decision makers about food security issues **v.** increase possibilities for low-impact transportation **vi.** encourage reduced consumption and **vii.** promote water conservation. **Transportation:** **i.** increase public transit in the region and provide incentives for use **ii.** investigate all forms of alternative transportation for their potential use in the region **iii.** consider impacts of transportation in all future development and **iv.** require developers to investigate alternative transportation strategies.



In the five months following the event, substantive and tangible progress has been made towards realizing the conference goals. It is clear that the event raised the level of awareness about the climate change problem and how it can be addressed. The event sold out, received extensive local media attention and was attended by Mayor Dooley, 5 (of 6) City Councilors, senior City Staff including the City Manager, the City Engineer and the Fire Chief, 3 Regional District Directors and several senior Regional District staff. Nelson is now a member of the PCP and the RDCK (which was already a PCP member) is in the process of completing a comprehensive emissions inventory. One of the directors has submitted recommendations to the RDCK board for how to best proceed with the next steps of the PCP. The Nelson Fire Chief has initiated a combustibles collection pilot project. The Regional District is considering a CO₂-neutral boiler system for Nelson's Recreation Centre. Participating groups at the conference are in the process of developing initiatives to reduce GHG emissions and create sustainable communities. Projects include local food security campaigns, a municipal composting feasibility study, and a local grain pilot project. Groups and local governments are researching the potential for geothermal, solar and other forms of green energy for the region.

Featured Speakers

Dr. Eric Steig

Dr. Eric Steig is an Associate Professor at the University of Washington in Seattle, who works on the ice core record of past climate change. He received his Ph.D. in 1996 from the University of Washington, was on the research faculty at the University of Colorado and taught at the University of Pennsylvania prior to returning to Seattle in 2001. He has published more than 60 peer-reviewed articles in international journals. He is senior editor of the Journal of Quaternary Research, and co-founder of the influential science web site RealClimate.org.

The Scientific Consensus

An example of talk without substance is the ongoing transportation debacle in Seattle. Washington State Governor, Christine Gregoire, is forcing the City of Seattle to rebuild our crumbling secondary highway through the city, the I-99 Viaduct. Very few Seattleites of any political stripe believe this is a good idea, from either a purely economic or a quality of life point of view. But we are told that the future city of Seattle must continue to support 110,000 vehicles on this road every day. Yet, transportation accounts for 60% of greenhouse gas emissions in the United States, and Gregoire has stated many times that Washington State needs to be a leader on tackling climate change. Indeed, I witnessed her introduce Al Gore at a pre-screening of the film, 'An Inconvenient Truth'. We need leaders who are willing to step up to the plate and take real action on climate change and, yes, that is going to mean decreasing our reliance on cars. I don't think there is any way around this. Even without global warming we need to change the way we go about things. As Seattle grows, those 110,000 vehicles will be 200,000, and they will still be in gridlock.

There is no uncertainty whatsoever that greenhouse gases represent a positive forcing on climate, and that greenhouse gases will continue to rise in the future. The only room for debate is the



strength of negative feedback - perhaps the reflectivity of clouds, for example, that will partly counteract this forcing. The consensus view on this held by the vast majority of scientists that have actually studied the subject at all closely is that negative feedbacks are, and will remain, weaker than the positive ones. In other words, it will continue to warm up at a rate faster than from the greenhouse gases alone. Greenhouse gases alone give us more than 1°C increase in temperature in the next century.

The strength of the scientific consensus on this issue is undeniable. Whether the consensus view is correct is another matter of course. But don't be fooled by those who say that the use of consensus by the Intergovernmental Panel on Climate Change is somehow atypical of the scientific process, and therefore suspect. Almost all of science, even theoretical physics, is an evolving working consensus.

One need not care about the plight of the third world to have a stake in helping to change the trajectory we're on. The entirely selfish desire to go skiing ought to be a perfectly sufficient motivation. I would like my own kids to be able to ski at Whitewater Resort when they are my age. Projections of snow pack in the future make it appear entirely likely that Whitewater will be closed or at least dedicated entirely to summertime activities by then.

Something not very well appreciated by many, including myself, until recently is how strong a position we are in to influence the future, depending on the decisions we make right now. My colleague David Archer at the University of Chicago, probably the leading authority on the earth's carbon cycle, has shown that continuing with business as usual will result in massive accumulations of greenhouse gases in the atmosphere that will be with us for thousands of years. Yet beginning to reduce greenhouse gases now by using entirely plausible scenarios as represented in economic models by mainstream economists could reduce that thousands of years to hundreds, and at much lower concentrations.

The immediate benefits will be small in terms of climate change, though they may well be very positive in terms of economic growth due to the positive influence of innovation on the economy. In the long term the difference is huge.

Guy Dauncey

A futurist and sustainable communities consultant who specializes in developing a positive vision of a post-industrial, environmentally sustainable future, Guy Dauncey is the author of *Stormy Weather: 101 Solutions to Global Climate Change* (New Society Publishers). He has given over 900 workshops, lectures and presentations to conferences, schools, colleges, churches and nonprofit organizations. He speaks on climate change, sustainable communities, smart growth, and sustainable solutions to the peaking of oil and gas supplies. Guy Dauncey is currently President of the British Columbia Sustainable Energy Association.

The Great Climate Challenge: Solutions that Work

1. ***The climate crisis*** is every bit as serious as many people fear. The science is solid, and there is an urgent need to prevent global CO₂ emissions from rising above 450 ppm, which



will trigger a 2 °C rise in temperature and the meltdown of Greenland and the West Antarctic, bringing a global sea level rise of 13 metres. Scary prospects.

2. **It is very important that we set goals**, and strive to achieve them. BC is aiming at a 10% reduction below the 1990 level by 2020. Toronto is aiming for a 30% below 1990 by 2020. The City of London (which is highly vulnerable to a 1 metre rise in sea level) is aiming to reduce its emissions by 60% by 2025. London's on the right track; we all need to join them.
3. **Cities have a very important role to play**. In September 2007, the Premier will be issuing a Climate Change Charter for cities, inviting them to sign onto a set of actions to help us reduce our greenhouse gas emissions. As a city with an almost mythical reputation in BC, Nelson has a very important role to play.
4. **All new buildings** could be zero-net energy, carbon neutral, using a combination of passive solar design, super-insulation, heat exchange from the ground or water, super efficient lights and appliances, solar hot water, and other innovations. There are lots of great examples of new green buildings to get inspired by, including the 69-story Pearl River Tower in China that will gain its energy from wind turbines built into the fabric of the tower.
5. **All our existing buildings** should be upgraded for energy efficiency at the point of sale to reduce their energy footprint, supported by all sorts of grants, tax breaks and incentives. Realtors could play a useful role if they gave new home owners the information they need to make their homes super-efficient – bringing greater comfort and lower fuel bills.
6. **How will we travel?** The world's oil supply is heading into the downward half of its supply curve, and with or without climate change we're going to have to scramble. Bicycles, buses, carsharing, ridesharing and video-conferencing are key players in any community's response. The car of the future will be the Plug-in Hybrid Electric Vehicle, and Nelson could speed its arrival by joining www.pluginpartners.org. 85% of our trips could then be done on an electric battery, using locally generated power. For longer trips, we'll need biofuels, gathered sustainably not from crops, but from our wastes.
7. **How will we power these new electric vehicles?** With energy from the Sun, Earth, Wind and Oceans, combined with making everything twice as efficient. BC has excellent green power potential, as does the whole world. Nelson could generate lots more green power if Nelson Hydro – your very own municipally owned utility – adopted the best policies for energy efficiency and Europe's Feed Laws, creating incentives for people to develop their own local solar, wind and microhydro projects.
8. **Education** is very important, since some people are comfortably resistant, and don't want to bother thinking. Climate change is extremely serious – but we can also turn it around in our minds and see it as an irresistible invitation to step forward as a civilization, into a sustainable future. Every school and college, every church and club, every business, organization and city needs to be taking on the challenge, and embracing the changes we need.



9. **Do Your Homework.** *We need to learn what's involved, so that we can benefit from the best practices and policies, and not re-invent the wheel. I wrote *Stormy Weather: 101 Solutions to Global Climate Change* with exactly this in mind. It's in all good bookshops, and available via my website at www.earthfuture.com*
10. **Getting Organized.** *The West Kootenay EcoSociety (www.eco.kics.bc.ca) and the West Kootenay Chapter of the BC Sustainable Energy Association (www.bcsea.org) are both working to help Nelson make a difference – and there's no better way to get involved than by doing so with other people. As the Fifth Law of Sustainability says – if it's not fun, it's not sustainable!*

Dr. Lori Daniels

Dr. Lori Daniels is a professor of Biogeography at the University of British Columbia. Her research focuses on using tree-ring analysis to investigate forest dynamics, particularly addressing questions about natural disturbance, climate variation and human impacts. She has on-going projects in the coastal temperate rainforests of BC, interior dry forests of the Cariboo and East Kootenays where fires were common historically, and in the mountain forests of the Canadian National Parks.

Historic Fire Regimes and the Impacts of Climate and People

Fire Storm 2003 took many by surprise. The "unprecedented" fires burned the wildland-urban interface and many homes and businesses at great cost to British Columbians. Many consider these fires a once-in-a-life time event. But, evidence from the tree rings tells us they could not be more wrong.

Historically, in dry climates such as the Cariboo and East Kootenays, fires maintained the forests. In fact, fire scars show that many dry forests burned every 10 to 25 years, on average. Severe fires that initiated a new generation of forests burned less frequently. Both forest-maintaining and initiating fires were associated with droughts during known years and decades of warm, dry climate - providing insight into future fire regimes under the influence of climate change.

Fire regimes have changed during the 20th century, due to combined influences of humans and climate. Fires decreased in the early 20th century largely due to human land-use change. In the past 60 years, despite warmer temperatures, fires essentially were eliminated from many forests due to very effective fire suppression. In the absence of fire, tree density and fuels can build-up increasing the chance of a severe fire.

The paradox! By trying to protect our forests and communities from fire, we have made many dry forests more susceptible to severe fires. These changes in our forest also have impacts on habitat and biodiversity.

What are our options? We need ecosystem-specific information on historic fire regimes to determine where they have been altered and are outside the range of natural variation. Where our good intentions have altered the forest, we need action - innovative, creative, ecologically-



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based mitigation and restoration are necessary. We as individuals need to take responsibility for our properties and communities through programs like FireSmart. And, we need to be aware that in spite of our best efforts, some fires will burn under appropriate climate conditions.



Dr. Jeremy Littell

Dr. Jeremy Littell is a research scientist with the CSES Climate Impacts Group at the University of Washington. His research focuses on how the climate system impacts mountain and forest ecosystems, especially hydroclimatic drivers of forest fire, the distribution of forest species, and the establishment and growth of trees. He does fieldwork in the national Parks and national Forests of the northwestern U.S. Outside of research and teaching, he spends his free time nordic skiing and bicycle touring.

Climate change and water issues in the Columbia Basin

Twentieth century climate in the Columbia River Basin was characterized by increased mean annual temperature (0.8 degrees C/century) and decadal variability (but a slight increase) in precipitation. Between 1950 and 2000, a direct consequence of the temperature increase was a decline in April 1 snow water equivalent (10%-60%+ decline across the Pacific Northwest), with the largest impacts occurring at low elevations.

From a hydrological perspective, the consequences of these changes for water issues are profound. The timing of snowmelt and of peak runoff in snowmelt-dominated basins has shifted, and model projections of future regional climate indicate these trends will continue. The impacts of climate change on stream flow timing would result in a decreased ability of the reservoir system to meet minimum stream flow requirements for fish, a slight reduction in firm power production, and improved compliance with flood control targets. Most scenarios indicate future decreases in summer stream flow, increasing the frequency of significant low flow events (even with projected increases in winter precipitation). A reconstruction of Columbia River flow based on tree rings indicates multi-year droughts are not uncommon in the last few centuries, so the interaction between natural variability in the climate system and climatic change must be considered when anticipating "worst-case" scenarios.

Changes in temperature, precipitation, and snowpack will also have consequences for terrestrial ecosystems. The increased potential for evaporation and transpiration from plants will increase water stress in forests and agroecosystems, leading to longer fire seasons, increased impacts from stress complexes, and increased irrigation demand. Transboundary agreements (such as the Columbia River Treaty of 1964) do not account for future climatic change or past climatic variability, and a need exists to anticipate climate changes to avoid transboundary tensions. For example, the U.S. Endangered Species Act mandates late-summer in-stream flows on the main stem U.S. portion of the Columbia, but in many years the water supply to meet this requirement originates in smaller but higher Canadian watersheds.

Amy Seabrooke

Amy Seabrooke works with the Federation of Canadian Municipalities (FCM) as a Capacity Building Program Officer within the FCM Centre for Sustainable Community Development. Amy holds a Master's degree in Sustainable Development from the Blekinge Institute of Technology in Karlskrona, Sweden and an undergraduate degree in Environmental Science from the University of Guelph. She has worked on projects ranging from community-based water quality monitoring with municipal stakeholders, to national capacity building initiatives in environmental stewardship.



Municipal governments have an important contribution to make to climate protection. Up to half of Canada's greenhouse gas (GHG) emissions (350 million tonnes) are under the direct or indirect control or influence of municipal governments. The Partners for Climate Protection (PCP) Program is a network of 148 Canadian municipal governments who have committed to reducing greenhouse gases and acting on climate change. Based on the international program, Cities for Climate Protection, which has over 600 members worldwide, PCP uses a five milestone framework to guide municipalities to reduce greenhouse gas emissions. The PCP Program is a partnership between the Federation of Canadian Municipalities (FCM) and ICLEI - Local Governments for Sustainability. Amy Seabrooke of the FCM will discuss the Partners for Climate Protection Program and share examples of climate protection efforts from municipal governments across Canada. By focusing on small to medium-sized municipalities (such as Whistler, BC; Okotoks, AB; Sudbury, ON; East Gwillimbury, ON; and Fredericton, NB), participants at the workshop will see how their local governments can take a step-by-step approach to climate protection – one that engages municipal elected officials and staff, community members and other key stakeholder groups in important decisions and actions that will help to create and sustain a healthy community into the future. For more information about PCP, please visit the FCM Centre for Sustainable Community Development website at www.sustainablecommunities.fcm.ca or contact Amy Seabrooke at pcp@fcm.ca.

Community Presentations

Tim Wake

Tim Wake is a Councilor for the Municipality of Whistler, BC. Whistler has achieved milestone 4 (of 5) within the Federation of Canadian Municipalities' Partners for Climate Protection framework.

Whistler began its journey towards sustainability in 1997 and has undertaken a series of plans and initiatives since then, culminating in Whistler 2020. Whistler 2020 is a comprehensive sustainability plan consisting of 16 strategic areas, an annual action setting process and continuous monitoring posted on the website at www.whistler2020.ca.

In 1997 Whistler also committed to a 20% reduction in GHG emissions from municipal operations from 1990 levels and a 6% reduction in GHG emissions for the entire community. This commitment was made through the FCM Partners for Climate Protection program.

Whistler was also the first community in North America to adopt The Natural Step (TNS) as a framework to move us towards sustainability.

Now, in 2007, Whistler has made significant progress in GHG reductions from municipal operations by closing and capping its landfill and capturing methane emissions. Community emissions are a different story and it has been difficult to curtail increases in the face of community growth and the recognition that Whistler's reliance on travel to and from the resort is by far the largest contributor to our overall GHG emissions. This means that even substantial reductions in our community emissions will not have much impact on our overall GHG emissions.

While we do not have a clear strategy for addressing this challenge, we will continue, with the support of our community, to work diligently towards reductions at the municipal and community



levels, as well as with the travel industry. There is no question that the 1997 commitment to the Partners for Climate Protection program and the adoption of The Natural Step were important starting steps in our journey towards GHG emission reductions and sustainability. The journey continues.

Peter Vadasz & Werner Rauscher

The town of Güssing, Austria hosts the European Centre for Renewable Energy which exports sustainable technologies and strategies worldwide. A bust town in the 1980's, Güssing is now boom town fuelled by green technology. Peter Vadasz is the Mayor of the Town of Güssing and Werner Rauscher is the CEO of the European Centre for Renewable Energy, Güssing.

Güssing, Austria – A model for renewable energy self sufficiency and economic prosperity

In 1989, Güssing was among the poorest regions of Austria. Bordering the 'iron curtain', Güssing had a high unemployment rate and was experiencing a massive labour migration to neighbouring regions. Beginning in 1991, the people of Güssing developed a renewable energy project. This project ultimately included the construction of a bio-diesel plant, a biomass long distance heating plant, a biomass power plant, a biogas plant, a photovoltaic plant, thirty energy plants, and establishment of the Renewable Energy Network (RENET).

The results have been astounding! Güssing is the first community in the EU to reduce GHG emissions by more than 90% and, because this has been accomplished by increases in energy efficiency, the economy is booming.

Today, Güssing is well on its way to total energy self-sufficiency. Güssing produces 47 percent of its fuels, 71 percent of its heat and 34 percent of its electricity. All of this energy comes from clean, renewable sources, primarily wood, resulting in net zero greenhouse gas emissions. Güssing is now exporting energy and has created 50 new enterprises, mainly in the area of renewable energy, and 1000 jobs in a community of 4000. The regional added value from Güssing's energy project is 18.7 mil Euro.

Güssing uses wood waste in the region and wood fibre plantations on marginal agricultural land as a fuel source for its renewable energy. Agricultural production and forest health are not compromised by the demand for wood fibre.

Carol Retzlaff & Angus Graeme

Carol Retzlaff is the Chair of the School of University Arts and Sciences and Angus Graeme is the Instructional Dean of the School of Health and Human Services at Selkirk College. Selkirk College has recently announced a new program in Renewable Energy Technology within the School of Renewable Resources at Selkirk College.

Contributing to Regional Solutions through Education

Selkirk College has had a 40 year history of providing programming and learning opportunities that meet the needs of its constituent communities. Our vision is to inspire, engage and enable learners to be valuable contributors to their communities and to society as a whole. Selkirk College has "pride of place" in the West Kootenay Boundary region and recognizes that "place" is more than



mere location: it is a composite of people, history, culture, values, lifestyle and landscape. In this regard, education can play an integral role in helping to find regional solutions to global challenges.

Selkirk College lists "Environmental Responsibility" as one of its values. We define environmental responsibility as: "conserving our natural environment and using natural resources responsibly."

To this end there are a number of current and emerging initiatives at Selkirk College that are well aligned with providing regional solutions to Climate Change:

1. The Selkirk College Board has appointed a "Committee on Sustainability" charged with looking at issues such as greenhouse gas emissions, carbon budgeting, green campus, alternative energy, building standards, purchasing standards.

2. The School of Renewable Resources continues to evolve its programming that supports ecosystem based practice and education in Forestry, Integrated Environmental Planning, Recreation, Fish, and Wildlife, and Geographic Information Systems at the diploma and degree level.

3. Establishing new programs such as Renewable Energy Technician planned for a Fall 2007 start, and Peace Studies, already underway with courses specifically around Peace and Environmental Sustainability.

4. Establishing research capacity and unique centres of inquiry such as:

- The Mir Centre for Peace with the mandate of understanding and building cultures of peace through education (the Mir Centre is heated using Geo-exchange technology, too!),*
- The Regional Innovation Research Chair in Rural Economic Development to support research on regional and rural approaches to economic diversification,*
- The Selkirk Geospatial Research Centre to support multidisciplinary, collaborative, innovative research in geomatics technology and the sectors the technology serves.*

Al Dawson & Andy Shradrack

Al Dawson and Andy Shradrack are Directors for the Regional District of Central Kootenay. Both are committed to exploring sustainable solutions to energy issues in the Central Kootenay.

Economic Benefits of Geothermal (Andy Shadrack, Area D)

In the spring of 2006 residents of the Lardeau Valley voted to spend 40% of their Columbia Basin Trust Affected Areas funding on converting their community hall from propane to geothermal heating. With an additional \$38,000 from the Community Works (gas tax rebate fund) the conversion was completed in December and the first bill in 2007 showed a reduction in heating costs from \$3,500 to \$700 over two months. In addition it is estimated total savings will be about \$7,000 a year and that approximately 3.25 tonnes less carbon per month will be emitted into the atmosphere during winter. This year they voted to spend 18% of their Affected Areas funds on



insulating the 40 year old hall and BC Hydro has contributed \$10,000 and they have borrowed a further \$12,000 from the Area D Community Projects Grant fund.

On a personal note Gail and I purchased a front loading washing machine in February and installed a dual flush toilet (3 and 6 litres) in March. A comparison of our Fortis bill for the last four months shows a saving of 598 KWh, a 29% energy saving from 16.5 KWh per day to 11.5 KWh per day and cost savings of \$40.45. This arises from a much lower consumption of hot water for each washing machine load. In addition our water consumption dropped from 113 US gallons a day to 39 and has only risen to 68 after we started irrigating our garden this summer. Our investment in the washing machine and toilet is less than \$5 per day for only one year.

Geothermal Potential (Al Dawson, Area F)

My two years of research into geothermal potential in the Kootenays was prompted by some detailed satellite photos received from the Russian satellite system. These satellite photos clearly confirm that the Kootenay region, located in southeast British Columbia, is a hot spot for potential development of geothermal energy. This is further substantiated by the proliferation of hot springs throughout the area.

There has been a trial installation in a community hall at the north end of Kootenay Lake that has resulted in a substantial reduction in conventional heating costs. We are currently looking at several other facilities which in addition to direct energy saving could also have steam generated electrical energy potential. In both a ski resort and golf course application these 'hot spots' could foster on-site hot springs, creating four season recreation destinations. In addition, there are several other potential sites, such as schools, recreation complexes, and public buildings.

Thanks for the opportunity to participate in your climate change conference. I look forward to further exploring geothermal and other energy saving opportunities with you.

Ray Green

Ray Green represents the Nakusp Energy Corporation, which is in the process of replacing the Nakusp Secondary School's propane boiler with an Austrian-built EnergyCabin system.

Nakusp Energy Corporation (NEC) - Turning Residual Wood Into Energy

In 2003, the Village of Nakusp formed the Nakusp Energy Corporation with the following goals:

- 1. dramatically reduce fossil fuel use*
- 2. utilize abundantly available residual wood*
- 3. reduce energy costs*
- 4. establish some energy independence*

Research into the Energy Cabin, an efficient wood burning heating system being used in other communities, convinced NEC that this system would be a good fit for their community. Armed with the knowledge that 25,000 BTUs of energy are created from 2 kilograms of wood shavings or 1 litre of propane, and access to a robust supply of cheap waste wood, NEC was poised to use this carbon neutral system.



The system will be installed in Nakusp Secondary School and replace the existing propane heater. The immediate impact will be a 30% reduction in cost and 100% reduction in greenhouse gas emissions.. As a result of the conversion, the combustion of 100,000 litres of propane/year will be avoided. NEC received the fuel supply contract, and Nakusp will attained greater energy independence.

Richard Quail

Richard Quail is the Municipal Manager for the Town of Okotoks, Alberta, and has been instrumental in his communities progress toward becoming one of the leading municipalities in North America in sustainable development and reducing GHG emissions.

Leave a Legacy - Sustainable Okotoks

Themes: Leading the Way, Working Together and Making a Difference

The Town of Okotoks became one of the first municipalities in the world to establish growth targets linked to infrastructure development and environmental carrying capacity (Sheep River) when it adopted a new Municipal Development Plan in September 1998.

The carrying capacity of the Sheep River (ability to draw water, infuse treated effluent) was identified as approximately 30,000 people. A build-out municipal boundary was established. A comprehensive set of targets and initiatives was identified to ensure build-out population could be reached in a sustainable manner. Hence the articulation of four "pillars" of Sustainable Okotoks:

- 1. Environmental Stewardship*
- 2. Economic Opportunity*
- 3. Social Conscience*
- 4. Fiscal Responsibility*

More than 70 initiatives have been undertaken under the umbrella of Sustainable Okotoks, reflecting defining elements of the relationship between people and their environment: Water, Air, Energy, Land and Soul. World leading initiatives include the Town's wastewater composting process; a solar community that generates 90% of energy consumption from the sun and a water/waste conservation education program that has helped reduce per capita water consumption by 30% (36% less than Calgary). The Town has also been a trailblazer in planning an initiative associated with a regional approach to watershed management. Initiatives have demonstrated a deep commitment to partnership building with the community, among all levels of government and between the public and private sectors.

The stamina of Sustainable Okotoks is a credit to its initial desire to best express and represent the desires of a widely consulted community and its challenge to residents to write the sustainable story with sweat equity. A distinct community identity is emerging. The community continues to change the nature of dialogue and debate about community features: values, quality of life, environmental impact, conservation, quantity vs. quality. The future is not being projected in Okotoks, it is being created.



Discussion Groups – Looking for Solutions

Three different groups were formed with each group to discuss one of the following topic areas:

ENERGY – includes, but not limited to, construction & retrofitting, hydroelectricity, biomass, geothermal, solar and wind.

LIFESTYLE - includes, but not limited to, choices people can make around the issues of food, waste, recreation, commuting, housing and consumption.

TRANSPORTATION - includes, but not limited to, public transit, City of Nelson & RDCK vehicle fleets, recreation vehicles, facilitating human powered transportation and carbon offsets.

Objectives

The groups had two main tasks. First, they had to identify any potential solutions without culling them upfront based on potential practicality. This was a real brainstorm session. Second, smaller groups discussed the details of what may be entailed in implementing any one of the brainstormed ideas.

The following section is organized into the three broad groups: key messages; brainstorm ideas; and summaries of the more detailed discussion on a number of topics.

Starting Point: We started by accepting that human behaviours and choices are influencing climate change. We asked participants to interpret 'sustainable' as 'a solution that doesn't create a new environmental problem' – consider trade-offs.

Session Objective: To identify potential sustainable solutions for the West Kootenay region

ENERGY SOLUTIONS

Key messages

- Energy consumption is the top priority.
- Priorities should involve educating the public about different solutions to save energy and save money.
- The public and municipalities should all be the focus of this.
- Develop incentives for energy conservation.
- Develop green energy sources locally and provide some examples that people can use to create their own solutions.
- Sell Nelson as a true green city. Monitor savings gained in order to sell the 'story' of the change that Nelson and region can make.



Energy conservation (top priority)

- Reduce consumption in general (people don't understand how overall consumption uses energy)
- Develop building codes that incorporate more energy-efficient designs - e.g. trombe walls and solar walls
- Engage all residents (not just homeowners) in conservation
- Have requirements for energy retrofits and improvements prior to selling a house - e.g. in Spain solar hot water systems must be installed before a house can be sold
- Have proper net metering with incentives for returning excess energy into grid
- Coupling energy – e.g. refrigeration for ice rinks generates heat which can be used to heat building
- Establish anti-idling City bylaw
- Develop public transit and incentives for use
- Make environmental/energy strategy a part of OCP and make it a legal document
- Create community gardens for local food production
- Develop municipal composting at community level
- Require adoption of existing green building standards for municipal buildings and all new large-scale construction - e.g. LEEDS standards
- Invite innovation by establishing Nelson as a clean technology test site
- Establish business leadership through innovation
- Require grey water recycling in new construction (for flush toilets)
- Have water metering and electricity metering (in England you have to fill these meters with coins)
- Study rationing models. How much do people actually need? This has been done in the past - e.g. in WW2 . What was learnt there? It can be done in a very short time period.
- City should adopt dark skies policy - re: efficient, downward pointing street lighting
- Put on a sweater. Don't turn on the heat as quickly
- Promote day lighting – remove fluorescent lights and put in skylights, especially in places like schools
- Challenge bright lighting expectations and norms in buildings
- Make energy more expensive on the condition that cost increases aren't just going to increase profits but are going into investment into green energy
- Use timers to delay appliances coming on until times of low energy demand
- Develop green mortgages – bank lends money for home green energy investments and mortgage payments are less than a regular payment
- Utilize asset mapping – e.g. energy resources locally
- Throw away your tv
- Articulate hierarchy of development values based on basic needs. Must be discussed openly and negotiated.
- Use anti-consumption “propaganda” – e.g. tours of homes where energy reduction is showcased

Develop energy sources locally that have a reduced footprint

- Put solar panels on CP lands
- Make use of turbines in areas of West Arm where current is extremely strong



- Develop geothermal potential
- Examine use of bio-fuels from wood chips
- Institute tax breaks for businesses that invest in renewable energy
- Create funding for residents, homeowners, and small businesses to help them invest in green energy
- Develop public education about all the things people can do in their homes - e.g. solar energy, retrofitting
- Consider bio-fuels crop production on unproductive agricultural lands
- Support solar hot water installations
- Cap landfills and capture methane for conversion into electricity
- Establish individual energy entitlements based on need (akin to carbon credits trading) – what is the baseline?
- Create energy cooperatives - e.g. windmills in Denmark
- Develop a wood chip and geothermal business park
- Use composting toilets to generate heat and power (save water and improve water quality)
- Capture methane gas from dog poop! (done in San Francisco)
- Develop geothermal potential from the lake- apply to all large projects across the region.
- Ask Nelson Hydro what other kinds of energy they can purchase (diversification)
- Utilize wind energy
- Harness human physical energy from exercise treadmills and stationary bikes
- Explore integrated planning of alternative energy resources – wood chips to biofuels to heating of greenhouses for growing food (addresses risk of catastrophic fires as well as local energy independence and local food production)
- Establish local chapter of BCSEA
- Eliminate phantom power load of appliances by shutting power off with master switch
- Encourage load management to reduce peak load demand
- Promote FortisBC's "Green Power Rate" which customers can opt for (Fortis will go out and find green energy sources)

Contact all the people who are doing the above solutions already and build on what is being done. Don't reinvent the wheel.

Detailed Discussions: Energy

Regional green catalogue (or database or map) of renewable energy resources

- The objective is to make green information easy to find, aimed at companies and individuals looking for products and services. It would include information on
 - green building materials,
 - green building contractors,
 - local organizations that provide green services (e.g., Rideshare)
 - green standards (e.g. (LEEDS) – for contractors, homeowners, students, municipalities etc.
- Who could organize this?



- Propose that Selkirk College Renewable Energy Program and Regional Innovation Chair could be stewards of it. Support for and maintenance of this (including website) could be through membership in the Renewable Energy Program (assuming it has a consulting arm and can offer services to members). Could do networking forums.
- Kootenay Association of Science and Technology (KAST) could coordinate a steering committee. Tech Village and the EcoSociety could be involved.
- Could be accessed on-line through the library.

Immediate Action: Organize a follow-up event to this one and invite anyone interested in helping develop the catalogue to participate

Geothermal Heating

- Objective: to increase awareness about the potential of geothermal (both large-scale geothermal power and ground source heat pump)
- How? Set up an exhibit to teach the community and local governments how geothermal works.
- Who could do it? Nelson Hydro? City of Nelson?
- What would it involve? A feasibility study of the logistics of the project. We need to determine who would run a large-scale system.
- Investigate potential trade-offs - e.g. issues with excavation, heating/cooling of lake, cost, size of facility, effects on power currently coming from hydro dams
- What are the priorities? Start with municipal buildings – skating rink, pool, etc that use large amounts of energy. Then expand to include residential buildings.
- What else needs to be done? Community consultation. Investigate long-term energy contracts that need to be terminated. Include in OCP. Plan for expansion. Find a precedent. Find land to build on.

Energy efficiency education for industrial/commercial energy users

- Goal: To allocate funds to educate corporate management who can then educate staff (e.g., free luncheon presentations, etc.)
- Incorporate building energy efficiency into bylaws and develop incentives or rewards for demonstrated efficiency gains.
- Promote champions and make successful initiatives in other places visible.
- Create resource like Green Energy Catalogue (see above).
- Create sustainability 101 Workshops for elected officials
- Create Business Community Task Force to figure out effective ways to educate staff.
- Look for ways to obtain (possibly through reallocation) money from provincial government

Energy conservation and efficiency for the public

- Objective: Educate and encourage action around conservation of energy.
- Undertake a community survey and education on energy consumption. How much does the public know? How do you reach the uninterested? TV commercials?
- Main Barriers: Energy is very cheap here, so people aren't motivated to reduce consumption. Ideally costs would increase with consumption. Basic energy allowance should be affordable but as use goes up the cost per unit of energy should go up.



(opposite of bulk discount idea). Also, capital costs are required for major efficiency improvements. Municipalities do have access to sources of funds that individuals do not – e.g. gas tax monies, Green Municipal Fund.

- Find ways to lower costs for individual residents. City could buy in bulk (e.g., 1000 front-loading washing machines) and re-sell at cost or with small mark-up to public.
- Educational Need – people tend not to recognize how water conservation relates to energy conservation. Water metering should be implemented by the municipality.
- Use other forms of education, including energy audits and monitoring reports.
- Inform politicians that we approve of them spending taxpayers' money on energy efficiency and education.

Consumption Awareness

- Objective: Identify targets around what kind of consumption we want to see 20-30 years down the road. Then identify where we are not in relation to these targets.
- The region could establish a fund to subsidize energy audits and retrofits. (note that federal government has similar subsidies)
- Make Smart Metering available to everyone. Make consequences visible to household. Could be funded using a pro-rated fee through which the biggest consumers pay the most.

LIFESTYLE SOLUTIONS

Key Messages

- Create a regional composting initiative that removes organic matter from the waste stream
- Educate about the opportunity to improve composting
- Structure the tax system to create incentives towards positive change at all levels.
- Educate about food security and the multi-level gains possible from growing and buying locally
- Increase possibilities for people to use low impact transportation – improve buses and mid-distance public transport. Encourage development of bicycle routes, particularly from new development areas to Baker Street.
- Encourage reduced consumption at all level
- Educate the public that water use means energy use

General

- Institute taxes, bylaws, and zoning that encourage energy efficiency and emission reductions across the board. All structures need to be reevaluated so that incentives are there to support sustainable lifestyle targets – adaptive management.
- Foster partnerships and working relationships between all groups
- Kutenai Landing proposal - there is no waterfront plan and yet development is going on. There should be a sustainability plan for developments. In terms of boats, regulate how many boats are going into the water.



- Consider ATV use and snowmobile use based on wildlife concerns.

Food

- There are many government and economic disincentives to local food production. We need new models for planning, such as, saving arable land rather than the old ALR models which allow agricultural land to be re-zoned and developed. Provide support for small and local farming rather than large scale monocultures. Change bylaws to encourage local food production (taxation, zoning). Encourage green spaces everywhere.
- Grow more food locally
- Create local gene bank (seeds)
- Encourage urban agriculture - backyard gardening and backyard livestock
- Provide mentoring for those who need to learn how to raise and kill their own food
- Promote eating seasonally. Learning what to eat and when
- Create central market and storage for food
- Educate about valuing food and the hard work that goes into producing food so it is appropriately valued in our purchasing habits
- Dedicate community space for community gardens
- Convert school playgrounds into green grounds
- Work with elders in the community to learn about food production
- Put in a geothermal system at the Central Education Centre

Composting

- Develop composting at regional district government level – more sustainable than everyone composting on their own (also bear friendly)
- Earth Matters – has urban composting project. Would love to be part of a group discussing different scales of composting
- Change regulations to support composting toilets
- Look at the whole 'Zero Waste' picture - not just composting (i.e. reusing, recycling, etc). Assess material use cycle and create regulation to limit packaging
- Put composting in all schools, private and public
- Utilize gases that come from composting for energy
- Educate people who want to do backyard composting
- Bring green building concepts into zoning, OCP, and other city bylaws
- Review government functioning for the purpose of coordinating efforts between government departments and various community areas.
- Create region-wide composting plan – targets, measurements, assessments.
- Put bins at transfer station/recycling depot for compost
- Establish worm composting – vermiculture
- Provide free compost – district compost free for residents
- Get people to compost using Social Marketing
- Build partnership between the City of Nelson and RDCK
- Establish free pick-up for yard waste (could be put to use for free compost) – reduces car trips, less of a footprint – example in Kelowna.



Combustible Waste Management

- Wild fire problems. Fire Smart – what combustible materials are out there on crown lands and what do we do with this material?
- Turn material such as hedge trimmings, forest waste, trees from bug kill into energy. What are potentials?
- Use methane from landfill

Transportation

- Bring back passenger rail, street cars and bicycle laneways. Consider free bus system paid through taxes
- Bus stops with the schedule on them would increase ridership – making services more user-friendly
- Extend rail lines, having spurs off main lines
- Provide real time buses – call in. Bus operator organizes route with passengers
- Designate car-free areas in the downtown core
- Stay home on Sunday - one day a week to reduce emissions
- Extend public transit to reach outlying areas beyond the city and provide more frequent bus.
- Increase capacity of carshare co-op program
- Develop neighbourhood-based or area-based carpool registry – linkage for neighbours
- Outlying communities need mechanism to get into towns, nothing available for these communities
- Establish bicycle-friendly or bike-accessible parking
- Develop special carpool parking (like commuter lanes for carpoolers) – incentives
- Integrate free buses with paid bus system (often hard to just go flat out free)
- Large city buses in Nelson are under-used. Could have smaller buses and fill them – more economical buses
- Help offset cost of free transportation by using bio-fuels and fuels derived from waste
- To reduce emissions take vacation locally
- Centralize communities so residents don't have to travel too far to get necessary resources

Consumption

- Buy less. Think about what you're buying. Buy locally. Be aware of what your purchasing
- Talk to others. Work together more. Re-unify communities
- Wal-Mart is one of the reasons for consumption increase. Create bylaws and planning that don't let big box stores into community.
- Restore Wisdom Traditions (cultural and spiritual traditions) so we can be mindful of what we are doing and what to be conscious of.
- Cooperate with Nature
- Clean-up house and get rid of things you're not using and things you can get rid of. Encourage more things like Trash to Treasure Day
- Packaging – Nelson needs more plastics recycling and curbside recycling
- Re-evaluate attitudes towards convenience. Do we really need pop cans, plastic containers, packaging?



- Driving to the transfer station seems counter-productive (Ladysmith model for solutions)
- Share items – e.g. lawnmower sharing, pruner and fruit-picker sharing. People need access to data where they can share tools so as to consume less
- Establish networks for coordinating businesses to waste less
- Increase housing co-ops by making them part of OCP. Revise building codes so that LEEDS regulations are in place for new buildings
- Urban planning – Create more pedestrian-friendly streets
- Partner with other communities that are doing similar projects to exchange ideas, support, resources
- Determine what the baselines are so we know what we're dealing with and where we're going.
- Educate children about consumption issues so they can make parents aware
- Change people's behaviour – If we're trying to change behaviours we need to take strategic approach and understand what the barriers are to people acting on sustainable initiatives. People are often waiting for government to take the lead. We must communicate effectively with people on this issue and understand what motivates behavioural change – e.g. community-based social marketing
- Paradigm shift from 'economic growth' to 'sustainable growth' is needed – we must acknowledge ecological limits to growth. Communities need to have discussion about what is positive growth and what is negative growth. Positive forms of growth include growth of quality, growth of spirituality, growth of wisdom
- Co-housing, ridesharing, foodsharing, etc. need to be promoted within neighbourhoods and communities. Consumer values mean 'I don't have to deal with you because I have money'. How to communicate and make decisions together?
- Ban plastic bags
- Organize tours of waste facilities so community can see garbage and sewage they create
- Pine beetle tree kill – look at solutions for using the wood
- Make ideas appropriate for region, not just Nelson, so that businesses don't decide to move to outskirts to avoid regulations. Foster closer collaboration between regions.
- Nelson Waste Transfer Site – consider possibility of moving the site
- Encourage everyone to turn off televisions. (Also, recognize the power marketers have over us in terms of dissolving relationships and hijacking children's thoughts and values)
- Foster open-mindedness. Listen to the values of everyone in West Kootenays and respect varied views on what sustainability means.
- Create Nelson sustainability website. Hold discussion forum on this topic. Connect a lot of websites that would have links to consumption issues. Create Wikipedia type site where people could list information relevant to the community.
- Use local newspaper to help foster sustainability – have 'sustainability goal of the day' to reach people who aren't aware of sustainability issues

REAL PARTNERSHIPS – have to work to make things happen

Renewable Energy Systems

- Support demonstration projects to convert houses to renewable energy
- Change bylaws so all new construction includes renewable energy
- Provide financial support for renovations to older homes so they are more energy efficient



Water

- Water usage needs to be monitored
- Are green lawns sustainable? – paradigm shift is needed
- Establish onsite grey water handling
- Every time we flush our toilet, the water goes through pipe to Grohman Narrows. Pipe could leak into the lake. Get sewage main out of river and put beside the rail track.
- Tie regional hydrology into food production

Recreation

- See notes on ATV and boat use in Nelson area (limiting access, restricting use, etc)

Housing

- What is the maximum human carrying capacity for the city of Nelson? Encourage high density housing. Make housing cheaper. Use alleys and cottages. Use existing properties rather than subdivide.

Detailed Discussion: Lifestyle

Water – Quantity and Quality

- The prevailing attitude in our country is that we have abundant water supply and therefore don't need to concern ourselves with wasting or polluting our water – water problems vary throughout the country
- Begin building resiliency into aquatic ecosystems so we have options later once systems are stressed and problematic
- Make direct and indirect connections to water – e.g. household consumption: direct - low flow shower, dual flush toilets; indirect - no pesticides on lawns. Provide supporting role, like funding and monitoring, so when water use behaviour starts to change we have baseline data for people to look back on
- Fundamental to change is changing prevailing attitudes. A tool for this is CBSM – Community Based Social Marketing

Communication

- What are barriers to communication? Convenience and risk are two barriers
- Neighbourhoods are not designed to promote neighbourhood connections (no sidewalks, wide roads, no encouragement of neighbourhood feeling)



- There are feelings of isolation within certain neighbourhoods.
- We need to expand and build upon what exists in neighbourhoods
- Create a project that engages different parts of community
- Community liaisons can support neighbourhood discussions. Then report back to group such as Eco Society for consideration
- Encourage discussions of sustainability issues and consensus-based decision-making with groups that may not be aware of these issues – ie. Lions, Rotarians, Rod and Gun Club) – Encourage open lines of communication by focusing on common grounds
- Promote a lifestyle that is locally-based. Provide resources in Nelson and slow down lives

Food Security/Sustainability

- Create mentoring program for home gardens – e.g. Italian farmers in Nelson
- Get mentors to come out and provide tools and resources for others to learn from
- Target individuals who are not involved in community market and invite them to create a food business incubation centre
- Create an agricultural gene bank for raising genetic stock. Make use of cuttings and seeds
- Allow for urban livestock
- School schedules are opposite of growing season. How do we maintain continuum for food growing with students?
- Develop a website for gardens (like car-sharing website) – can help people share garden tools, information, skills, vegetables, labour etc.)
- Promote community kitchens for food security and education. Get families together to share, cook and eat
- Educate about importance of local food
- Promote minimal impact on earth
- Foster 'sense of neighbourhood'
- Take packaging off while at store and give to cashiers

Combustible Waste Management

- Nakusp and Güssing models show us how to utilize waste wood products. We want to know what are the trade-offs of our choices. We don't want to create new problems. We need a clear vision – start small (Nakusp model, one school).
- Do a visioning process
- Ensure sustainable forest harvesting
- Look into the potential for power from waste wood to provide free local transportation
- Investigate the opportunity for cogeneration
- There might be difficulties in Nelson of finding a long-term energy source for cogeneration.
- A mill in Revelstoke uses 10% of its sawdust waste to heat public buildings. Need to ensure sustainability. The economic incentive will become stronger as prices for power increase in future.
- Research alternatives and consider trade-offs
- Initiate pilot projects. Find out how to get funding from governments to do these projects. We need a clear vision of what we're starting with and where we're going



Planning and Bylaws

- Our governments must recognize potentials for sustainability in water conservation and renewable energy. Funding with low interest is available to municipalities but not to individuals and non-profit groups.
- Funding could be transferred through government to residents and groups for building renovations and pilot projects.
- Baby boomers must learn how to 'live' in the future so they can become aware of their own impacts on climate change

Changing Behaviour Through Education, Communication and Partnerships

- Sustainability Festival - Involve arts communities (music, dancing, etc.) to bring together community members and celebrate this exciting time of change. A festival can continue the discussion we're having at this forum and allow us to celebrate sustainable living at the same time
- Allow youth to educate and share their experiences and knowledge of sustainability
- Bring in other community groups with related concerns to unify efforts and avoid overburdening too few groups
- Create acting forums to communicate the discussions we're having at the conference

Composting

- Regional Districts of Central Kootenay and Kootenay Boundary are working together to build centralized composting station – but maybe this is not such a good idea as they are transporting food waste considerable distance to a central location. What are the externalities that are not being looked at in this process? More community based composting facilities may be better
- Research 'best practices'
- Process methane from landfills and composting facilities to fuel vehicles or heat buildings.
- We want compost to be used on gardens after, so we need to be aware of what is being put into compost – keep loop closed.
- Earth Matters has small scale composting facility – needs to grow in way that fits with demands of community
- How to overcome barriers to people composting?
- Use education and the media to let people know why compost is important. Seek advice from people who know how to prepare compost to reduce vermin problems in town (skunks and dogs etc.). There's a social bonus – composting could create jobs. The more people become involved in the process, the more people will become aware of where their food is coming from and how it grows



TRANSPORTATION SOLUTIONS

Key Messages

- We need to increase public transportation availability within and outside of city. Provide incentives for people to use it. This will provide extensive long-term benefits to the region.
- All forms of alternative transportation must be considered along with the infrastructure necessary to support this.
- Ensure the future development of Nelson takes into consideration issues of transportation. New developments that are not environmentally friendly in terms of transportation should not be granted.
- Developers could create a fund to support public transportation to their development. This is relevant to waterfront developments and areas within the regional districts.

Comments relating to within the city of Nelson

- Free public transport with bike racks attached to buses. Bus Rider's Union – look up on internet to get good ideas for improving transit
- Carbon credits are not a solution to anything
- Buses are an option but have challenges – more use required
- Government needs to take leadership and promote carpooling and transport with financial incentives
- Get city to promote "Walking Wednesday"
- Build pedestrian mall on Baker Street
- Raise parking rates in Nelson downtown (redirect funds to transit)
- Implement 'single occupancy vehicle toll booths' (\$5 charge to get into town if single occupant)
- There is a Nelson Bio-diesel co-op. City of Calgary is using bio-diesel – they've gone beyond the experimental phase and have made it a part of their transportation system. BC energy plan includes changes in laws to incorporate bio-diesel in future
- Bio-diesel as an option for city vehicles
- Car co-op and buses can get people out of their personal vehicles.
- We need to provide opportunities for mobility-challenged people – e.g. injured, with children, etc
- Urban densification must include sustainable transportation planning
- Video conferencing should be made available at very low cost, to reduce need to travel for official purposes
- Toll highways? User pay road systems?
- Electric cars
- Compressed air cars
- Create anti-idling by-law
- Remove cars from Baker Street - pedestrian malls are wonderful (safe, positive and peaceful) and good tourist destinations – e.g. Ottawa, Kimberly, Calgary
- Promote active and safe transportation for kids to get to school
- Need cultural shift towards sharing with neighbors – how do we promote this? Shared grocery shopping can reduce car trips. Good for community building as well as energy efficiency
- Use human energy for transportation and recreation – e.g. canoe, bike, hang-glide
- Check into European charter of pedestrian rights



- Consider transport issues when agreeing to any further developments in Nelson. Ensure developer puts some proportion of the money into development of public transport or bike paths to downtown Nelson.
- Provide local support for alternative energy vehicles – Could groups put together soft orders to drive manufacturers to increase supply to this area and bring costs of these vehicles down?

Schools

- School boards recently engaged a consultant to increase efficiency of student bus transport system. Are the results available?
- Has this been done with public transit system?

Regional district

- RDCK operates two transit systems – Balfour-Nelson/ Nelson-Slocan (contracted out) – that have the highest per capita ridership outside of metropolitan areas. The RDCK recently received additional funding to improve schedules between Nelson and Kaslo and north district. Schedule expansion is necessary. Need clearly visible pick-up/drop-off zones and high profile schedule and signage which would become a kind of advertising. Responding comment was that there are regulations against signage in many areas.
- Commuting is a major issue for families– buses are inappropriate for kids car seats. Can transport be made more ‘child friendly’?
- We need to look for alternatives to fossil fuels for longer transit routes as well as in the city.
- Problems with rural living involve commuting to work – carpooling is an option. We need to get past resistance that “it’s not convenient” to carpool
- Rails to trails should be continued to connect Nelson and Castlegar for bike riders/commuters
- How about trains? Can railways be used to transport people?
- Appreciate public transport. However, the trouble is you can get stuck in town if you miss the bus. Also, a Sunday route is required. Hazard mapping is required for additional route planning.
- Some areas are off-schedule for busses - e.g. Passmore. What are the options?
- Ban 2-stroke recreation vehicles
- Increase width of sidewalks and decrease width of roads
- Examples in some towns (i.e. Whistler) have shown that people will only utilize public transport such as buses if it is substantially less expensive than driving their car and about as convenient. There has to be financial incentive to make the switch from private to public transit. Right now taxes pay for highway and bus users pay for transit
- Need more bike racks on all buses!
- MOT engineering standards must be relaxed for rural bus stops – rural bus stops must be affordable
- ‘Strip’ development is not good for transit
- Bike paths and pedestrian paths need to be separate from roadways and possibly along contours of land to make them more user-friendly



Other comments

- Link insurance to kms travelled. Provide incentives for less driving.
- Community gardens could reduce need for transport of food
- Reduce urban sprawl
- Create pedestrian-only Baker Street between the Co-op and BCAA
- Build park-and-tram system
- Create regulations and bylaws to discourage vehicle use.
- Taxes should be used to pay for public transit, similar to policing, health care, and education. It is one of life's necessities
- Companies that buy parking space for their staff could also contribute to public transport
- Use smaller, privately owned busses
- Co-insure smaller busses.
- Relax rules on street-legal vehicles – e.g. golf cart type vehicle for errand running
- Decentralize services and markets to reduce need to travel long distance
- Develop a commuter bike for Nelson
- Make police department more active in recovery of stolen bikes
- Introduce electric cars in the car co-op
- Create more hitchhiking spots where there's parking
- Discourage ethanol production because it is not a real solution for reduction of greenhouse gases
- Utilize trains for transport of goods instead of trucks
- Develop train transport – single carriage train between local towns
- Healthcare transport is a huge travel load – we need to get more services locally

Detailed Discussions: Transportation

Tackling problems with Public Transportation – making improvements and getting more users

Market Research

- RDCK GIS and Selkirk College GIS technology – coordinate with BC Transit to map demand:
- Analyze population distribution and demographics to locate “public transit market”
- Develop parking lots with bike facilities
- Connect public transit to all major services and facilities. Determine minimum ridership per run to sustain this
- Survey local residents between major centres to find out when and where people would use transit to tailor size of vehicles and schedules to demand
- Conduct community survey to find out who does and doesn't use it and why or why not.



- Let the market drive the supply, location, times
- The RDCK would perform the survey and be able to obtain funding and coordinate the research with BC transit. Funding must be found federally and/or provincially

Funds redistribution

- Have colleges, schools, private parking lots, etc charge extra for parking and put the money into public transit
- Incorporate a tax for private vehicles and use these funds to support free public transit – the tax could be applied on a sliding scale based on the degree of environmental impact of a particular vehicle
- Develop municipal partnerships with environmental agencies to obtain funding
- Letter writing campaign to RDCK; cc to BC transit – the public demand would drive them to find more funding
- Community demand – organized groups, demands, petitions, noise will determine where funding dollars go for more public transit routes.
- Higher gas prices, higher parking rates will create more kiss-n-ride, HOV lanes

Improving transit structure, features, technology

- Increase user-friendliness by combining rural routes with city connections – bus terminals, airport, schools, main streets, hospitals, park-n-rides
- Allow privatization of bus systems – allow freelance bus services
- Allow integration of personal and public transit (bike rack, parking, park & ride)
- Include child seats on public transit
- Make busses more frequent and more comfortable – run on Sundays
- Transportation system should be made to use alternatives to fossil fuels

Attitude and Marketing

- Connect public transit with ideas of recreation and freedom – weekend activities
- Make the idea of public transport popular – “vilify” owning a inefficient car
- Look at getting professional marketer to promote using public transit - marketing campaigns to make public transit an “attractive” option

Other Ideas

Electric cars, compressed air cars and plug-ins

- Conversion of city fleets and other government fleets to electric and/or compressed air vehicles (IHA, RDCK, province, etc). Costs are 75% less per km.
- Show the movie “Who Killed the Electric Car?”
- We need information about availability of electric and compressed air vehicles - Yes they are available and will be more available in 3-4 years. The market demand is there. You can special order from Winnipeg and Vancouver Island. Check out compressed air technology at: www.theaircar.com.
- We could get folks together and place ‘soft orders’



- Look into electric buses/trams.
- Look into compressed air buses
- What are the environmental implications of generating more electricity?

Travel reduction, HD videoconferencing

- To reduce travel we need smart zoning, smart growth principles, multiple uses, high density developments - We need people to recognize their footprints. Living rural lifestyle has environmental costs/footprint
- Prestige Inn and SD8 have videoconferencing. HDVC is at SFU now
- We need to research and circulate information about potential for videoconferencing.
- Encourage sustainable trip planning
- Recognize that air travel is going to be curtailed soon and encourage personal responsibility for traveling less (culture shift)
- Employers can encourage/support telecommuting, discourage air commuting, and support passenger rail at local, provincial and national levels
- Schools can encourage bike/walk campaigns and work to increase safety for pedestrians and bicyclists.

Public transport: making buses more attractive

- Free and more frequent buses
- Create a bus rider's union - we decide the terms and negotiate with the service providers for more bike racks, etc.
- Raise parking rates to pay for transit
- Pay-per-km insurance
- Advertise the public transit system to raise awareness - promote it and make it cheaper or free
- We need a public bus to Whittowater Ski Area in the winter
- Universities have U-pass systems - Could we do the something similar with auto insurance? i.e. a surcharge on your auto insurance, to subsidize bus passes. Employers could have a bus (like Celgar or Insight Electronics) or they could pay into a U-pass system. They could have an independent shuttle or make the public system work better for them by integrating their shuttle system with the public transit system. Alternatively, companies could change shift times to better coincide with bus schedules.
- Meter water use and apply the savings to transit
- Conduct transit user and employer survey to investigate how to motivate more use
- Create hitch-hiking spot before the Orange Bridge.

Train system

- The speed limit for rail between Nelson and Castlegar is 20km/hour - This might be too slow for passenger rail.
- What about smaller bus-type vehicles on the rails, like the CN white truck with the rail adapter? We need the population base to support such a major investment - trains are expensive. What about freight? There are lots of logistical issues and few economic incentives.
- We need to make sure corridors are maintained in a condition that would permit future rail use.



Anti-idling public awareness program

- Could involve public, trucking companies, and provincial government
- City could bring in a policy but couldn't enforce it outside of town
- Do anti-idling education - Like dog rules in parks. They aren't enforced but most people respect them.
- Start with awareness - by-law enforcement staff could remind people.
- Install idle-free zone signs.
- Fleets could have anti-idling policies like Nelson Transit already does.
- Workplace education via employers, unions
- Industry needs to understand that you don't need to idle diesel vehicles. What are the facts on this?
- School board could post 'No Idling' signs at school zones, where parents wait to pick up their kids
- Suggest that the City also look at not idling their other machinery.
- Suggest that the City ban the practice of idling diesel locomotives within City limits

Biodiesel and other alternative fuels

- For private and fleet vehicles
- Wood from thinning of the forest for 'fire-smarting' could be a fuel source
- Concerns with biodiesel include sources, i.e. GMO monocultures, and food vs. fuel land use issues
- Look at the Güssing, Austria approach: waste wood, wood chips, etc used for biofuel production
- On the pro side, biodiesel creates less GHG emissions than fossil fuels and is at least a transition strategy
- Algae oil is a potential future solution
- We need education about biodiesel - what is it?; the benefits, and the concerns
- Talk to local car dealers about bringing in diesel vehicles and increase soft demand
- Create chat zones on websites.

Disincentives for SOVs and fossil fuel use

- Roads are paid for by governments rather than users – should be based on user pay. How do we create this type of system?
- Create supports for hitch-hiking
- Implement SOV tolls to encourage ride-sharing - toll roads - e.g. in Berkley you can pick up riders at transit station and thereby avoid paying the SOV bridge toll
- Levy taxes on two-stroke engines, making motorized recreation expensive and thus discouraging backcountry motorized use
- Tax gas-guzzling vehicles
- Increase parking fees and use them to subsidize transit - we need to accept some inconvenience and the public needs to be "agitated"!

No Cars

- What if there were no cars?
- Walking, biking, skateboarding, sail-enhanced skateboarding are fossil fuel-free forms of transportation
- Let's relax laws on what is street-legal for transportation - allow electric golf carts within city limits. There may already be an example in the province.



CLIMATE CHANGE: EXPLORING REGIONAL SOLUTIONS

April 23 -24, 2007 Nelson B.C.

- We need to live in high density communities so we don't need to travel far - eco-village
- Use more human power to transport us
- How about a car-free day once a month/week?
- Cobblestone streets would slow things down
- We need to green our transportation, like in Europe (see European Charter of Pedestrian Rights)
- We need an electric trolley on Baker Street and free bicycles available at drop-off/pick-up stations.
- 18,000 vehicles come in and out of Nelson each day - Yikes!

Further Musings

- How do we have a strong economy and accomplish many of these ideas? We need to keep this in mind. What are the economic upsides of this transition? - e.g. - Pedestrian malls make economic areas more vibrant.
- We need think-tanks, places to convene to discuss these ideas and new research. Publicize successes and good models from other places. We could use on-line forums.
- Challenging the culture that says each household has at least one car – research situation in other countries and present as way to change norms.