

VILLAGE OF NEW DENVER

RESILIENCE ACTION PLAN



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EXECUTIVE SUMMARY



The development of the New Denver Sustainable Community Plan has been conducted in three phases. This third and final report comprises the **New Denver Resilience Action Plan** and is intended to meet the requirements for the transfer of Federal Gas Tax Revenue to the municipality.

Phase 1 consisted of background research, defining sustainability, development of indicators which were applied to a thorough review of Village documents and the initial identification of opportunities.

This first phase began with research into the meaning of sustainability. This showed that the term 'sustainability' is often misused. In order to identify meaningful actions our research led us to refine our action plan in terms of building community resilience. Resilience at a community level is about being able to adapt to change, our research showed that energy scarcity and climate change are two future drivers that offer New Denver many opportunities in building resilience. We've used the resilient principles of permaculture as applied at a community level to assess the resilience of New Denver. Our document review and application of indicators found that New Denver is doing many progressive things towards building Village resilience. It also allowed us to find many low hanging fruits that offer great opportunity for the village to go beyond business as usual.

The second phase was the public participation process. This process was organized into a workshop, where the concept of community resilience was presented to the participants. The public were then led through a workshop to brainstorm both individually and as a group, on their ideas of how to make New Denver more resilient. Both this meeting with the public and our review of village studies showed that self reliance and self sufficiency are built into the history and the bones of New Denver.

This report concludes the third and final phase of the development of the **New Denver Resilience Action Plan**. Our focus throughout this project has been to come up with an action oriented plan with a long reaching and strong vision of Village resilience through detailed Planning Directions (Section 3) backed up by comprehensive Bylaw Recommendations (Section 4)

Our team would like to acknowledge the Staff at the Village office; Catherine Allaway, Carol Gordon and Lisa McGinn for giving us insight into the Village and its workings and also to thank them for their thoughtful encouragement and input throughout the process. The residents of New Denver who offered their valuable insights during the process. And to the Mayor of New Denver and council who were open to our unique approach in developing this plan.

Working with the residents and staff and getting to know the village taught us many things about resilience and we are grateful for the opportunity.



PREVIOUS WORK

PHASE 1 - DOCUMENT REVIEW

Phase one was a review of Village documents and a research on the meaning of sustainability and how to define the concept and how it could be applied in New Denver. This research led to the importance of going beyond sustainability by adding the concept of resilience to Village planning.

The future drivers of energy scarcity and climate change were highlighted as important considerations in testing the future adaptability of New Denver. The concept of resilience was introduced as a way of moving beyond more typical and arguably industrial models of sustainability. An ideally resilient community is hard to classify as solutions are driven by local conditions and environment. However, certain characteristics set it apart from business as usual. The following table highlights some of these differences.

CHARACTERISTICS OF RESILIENCE¹

CULTURAL CHARACTERISTIC	CULTURAL PARADIGM	
	INDUSTRIAL	RESILIENT
ENERGY BASE	Non-Renewable/Fossil Fuel	Renewable
MATERIAL FLOWS	Linear	Cyclical
NATURAL ASSETS	Consumption	Storage
ORGANIZATION	Centralized	Distributed
COLLECTIVE KNOWLEDGE	Proprietary	Open Source
FOCUS	Centre	Edges
SCALE	Large	Small
THINKING	Reductionist/Mechanistic	Holistic
TIME SCALE	Short-Term	7 Generational
MOVEMENT	Fast	Slow
VALUE	Quantity	Quality
COST ACCOUNTING	Externalized	Internalized

It is important to understand that in real systems, like that of the Village of New Denver, things are never black and white (industrial or resilient), and will fall somewhere on a continuum in the territory between the two.

Our use of the twelve principles of permaculture was a means of evaluating and scoring the current resilience of New Denver. The 12 principles are repeated in this section for clarity with the individual principles explained in Appendix A. For further discussion on permaculture and its application at a community level please refer to the Phase 1 report (issued January 11, 2010).

1 - Adapted from Permaculture, Principles and Pathways Beyond Sustainability, David Holmgren, 2004.

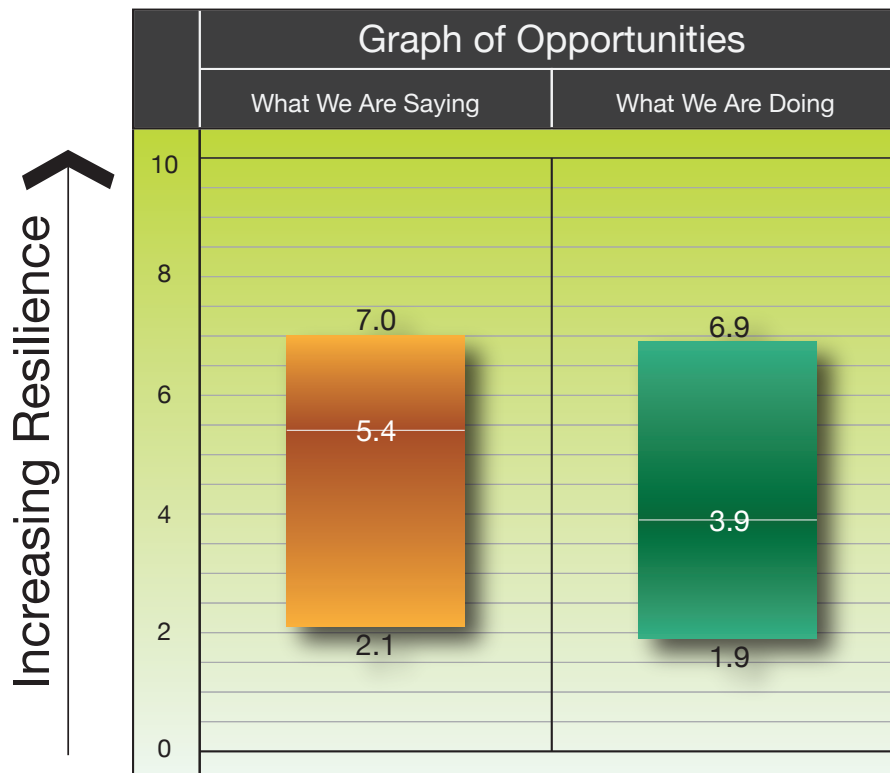
THE TWELVE PRINCIPLES OF PERMACULTURE

- | | |
|--------------------------------------|--|
| 1. Observe and Interact | 2. Catch and Store Energy |
| 3. Obtain a Yield | 4. Apply Self Regulation and Accept Feedback |
| 5. Use and Value Renewable Resources | 6. Produce No Waste |
| 7. Design from Pattern to Details | 8. Integrate not Segregate |
| 9. Use Small and Slow Solutions | 10. Use and Value Diversity |
| 11. Use Edges and Value the Marginal | 12. Creatively Use and Respond to Changes |

The review of New Denver's resilience was done through a rigorous review of planning documents and Village bylaws. There was a distinct difference between the planning documents, which were more vision-based, and the Village bylaws, which were more enforcement-based. This difference was noted by classifying the planning documents as "What we (the Village) are saying" and the Village bylaws as "What we are doing." This separation provided a clearer evaluation of how resilient the town is and where it falls on the above continuum. Simply put, it evaluated how resilient planning was being promoted (through their planning documents), and if the level of follow through with bylaws that supported the planning initiatives

OPPORTUNITIES

The graph of opportunities (below) highlights how resilient the Village is in terms of planning and implementation as evaluated in Phase 1. This review allowed us to highlighted a set of easily-achieved actions (low hanging fruit) that could improve Village resilience in the short-term as well as longer term visions.



PREVIOUS WORK

Overall our review identified some very progressive things that the Village is doing as well as many low hanging fruits that could improve Village resilience. Section 2 of this report reiterates some of the great steps that New Denver is already making towards resilience. Section 3 – Planning Directions and Section 4 – Bylaw Recommendations highlight concrete ways the Village can move towards increased resilience. Section 5 discusses way of measuring future success.

PHASE 2 – PUBLIC CONSULTATION

A public workshop was held to discuss the direction of the Sustainable Community Plan with residents of New Denver, and to creatively brainstorm ideas on how to make New Denver more resilient. About 30 residents attended the workshop on February 11th, 2010, at Knox Hall. A detail of the workshop methodology as well as all public input is included in Appendix B.

The goal of the workshop was to create an interactive environment so that the attendees could come up with vision statements of Village resilience in the traditional four categories of sustainability. Those four resident visions are presented below:

ENVIRONMENTAL RESILIENCE

Environmental resilience will preserve the natural amenities of the Slocan Valley, including: Clean drinkable water; Unpolluted lake; Fisheries; Scenic resources to maintain New Denver as a nice place to live that will attract small businesses. Also necessary is a transition to sustainable energy resources.

SOCIAL RESILIENCE

To build social resiliency through enhancing life, skills, activities, improving accessibility & creating learning opportunities for all residents, and in particular, youth and seniors.

ECONOMIC RESILIENCE

New Denver will be economically resilient with a strong permanent resident base which will support and promote local living. Through food security & sovereignty initiatives the diverse population is healthy & well fed. Value added and local cottage industries are strong & diverse to support the local economy. We are responsive and adaptable and continue to recruit new contributing community members. (And we all use the public outhouses regularly).

CULTURAL RESILIENCE

Cultural resilience will include diversified investment, including local funding, to establish an arts/education centre that would provide space for artists, art-oriented guilds and festival development. The strengthening of arts and culture in New Denver will foster community inclusiveness and cultural enrichment.

RESILIENCE ACTION PLAN



1 INTRODUCTION

Phase 3 of the project focuses on finding action oriented solutions intended to increase the resilience of the Village of New Denver. The ideas generated come from both the research in Phase 1, discussions and input from Village staff and council as well as resident input generated in Phase 2.

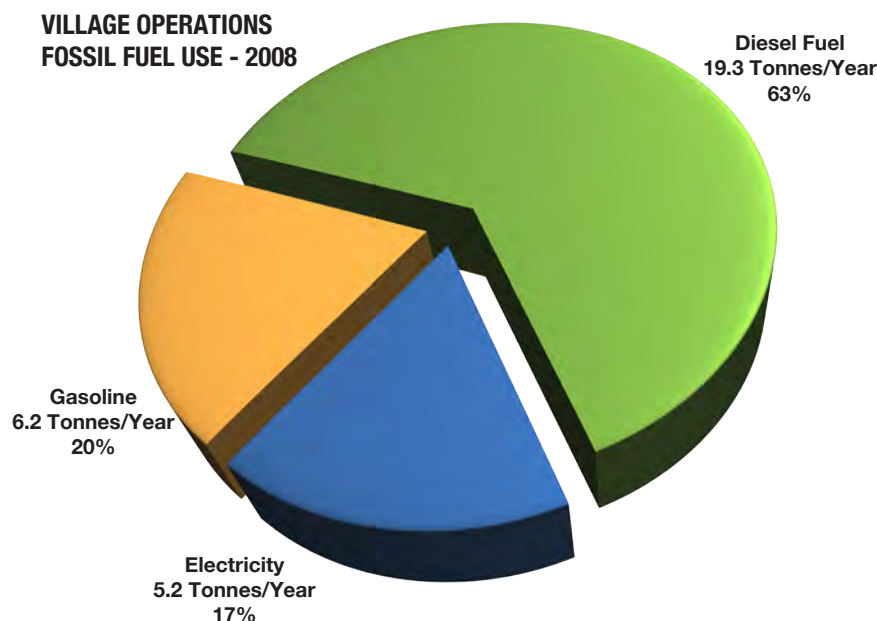
It begins with highlighting What New Denver is Doing Well to build community resilience. In particular, the BC Climate Action Charter, the New Denver Food Charter, the New Denver Anti-Idling Bylaw, the New Denver GE Free Bylaw, and others, are all well advanced beyond many municipalities. These are unique reflections of the location of New Denver and its residents, as well as the progressiveness of Village council.

The second part of this report summarizes broad planning visions, Directions are based on building Village resilience. Many of these ideas feed into the third part of the report by offering specific bylaw recommendations. Finally, we address how New Denver can measure its future progress in building community resilience.

2 WHAT NEW DENVER IS DOING WELL

2.1 BC CLIMATE ACTION CHARTER

The BC Climate Action Charter commits New Denver to achieving carbon neutrality in their municipal operations by 2012 (amongst other things). The Green House Gas Emissions (GHGs) from village operations is broken down below:



In 2008, the Village produced 30.8 tonnes of GHG emissions. 83% of this comes from the Village vehicles and maintenance equipment. Capital costs of converting the entire fleet over to wood gas or some other option like electric - which would still generate emissions – would be quite high. The Village could assess the way it is using its vehicles as a first pass at how to reduce emissions. Converting a single gasoline vehicle over to a wood gasification vehicle could reduce some emissions. From a resilience standpoint, this would allow a local source of fuel to be used and add a measure of self sufficiency to village operations. The next section reviews other opportunities related to energy and emission reductions.

Carbon taxes in the form of carbon offsets or other means will affect New Denver's bottom line. The cost of offsetting the 30 tonnes/year of emissions will vary with the price of GHG's. Future cost of GHG's is hard to predict, but \$12 - \$50/tonne would not be out of line. At \$50/tonne an annual offset cost in the order of \$1,500 could be expected. As will be shown in the energy recommendations, focusing strictly on GHGs may miss the biggest gains in reducing overall energy use.

2.1.1 THE BC CLIMATE ACTION CHARTER AND SOLID WASTE

The current BC Climate Action Charter specifically excludes solid waste contributions from the municipality. However, after 2012, this is expected to be included in the Village's liability for GHG emissions. In 2008, GHG emissions from solid waste management attributable to New Denver were 185 tonnes. At \$50/tonne this increases Village liability by an additional \$9,200 after 2012.

Currently the Village is doing many things to attempt to divert material from the landfill. Arbor Day collections are done twice per year (where yard waste, i.e. leaves, clippings, branches, are collected at no cost to residents. Branches are chipped, and resultant mulch is used for Village landscaping.). This could be improved by required this material to be

put into biodegradable bags that allow for composting. The Village could also explore the benefits of a community composting facility. The Village also participates in the RDCK recycling program, however as with solid waste, all jobs are outside the community. And, with recycling, there is no guarantee the materials are actually recycled.

Any serious effort to build resilience and effectively reduce the municipal GHG emissions will require a massive rethinking of current solid waste management procedures. The old landfill site could become a very valuable asset in handling New Denver's garbage in an energy constrained future, when transferring garbage to Trail will become impractical due to skyrocketing fuel costs and an associated decline of road conditions due to rising maintenance costs. Additionally, the GHG liability due to moving garbage such long distances will increase dramatically. A local landfill would build community resilience and could provide jobs for locals and would provide potential for methane gas recovery for use in community projects. Having to carefully manage solid waste could lead to more effective ways of dealing with waste. For example see Building Bylaw Recommendations regarding the advantages of deconstruction versus demolition.

2.1.2 FURTHER ACTIONS REQUIRED FROM THE BC CLIMATE ACTION CHARTER

In viewing the BC Climate Action Charter from a broad sense, most of the suggestions and the focus of the plan is to find ways of reducing energy use which is a prime focus of this Resilience Action Plan. Specific actions are highlighted when they appear in the remaining of this document.

2.2 ANTI-IDLING BYLAW (UNDER DEVELOPMENT)

This bylaw is a recommended action in the BC Climate Action Charter and will fulfil a commitment under that agreement.

2.3 FOOD CHARTER

Identifying the support of locally supplied food and food production as a Village priority is a big step toward building Village resilience. In order to put this charter into action we have offered many suggestions in sections 3 and 4 on implementing food resilience.

In terms of a more effective food charter, a key priority of identifying the protection and building of living soil is worthy of consideration as an amendment to the charter. Acknowledgement of how living soil contributes to healthy and resilient food production would be a strong statement. This could also filter through OCP and Planning documents which identify areas with good soil conditions for growing food (see Bylaw Recommendations).

2.4 GE-FREE BYLAW (UNDER DEVELOPMENT)

The wide spread implementation of Genetically Engineered (GE) plants and trees that has been endorsed by our Federal Government has been called one of the greatest uncontrolled experiments of our time. Coming up with an effective bylaw to express the absolute necessity of applying the pre-cautionary principle and supporting a GE Free town and region will go a long way towards building resilience. A GE Free bylaw will show that the Village is interested in protecting the value and inherent wealth stored in seeds that are not corporately controlled and can be propagated without fear of punishment or penalty. In effect a GE Free bylaw would support the Open Source concept of seeds and treating them as a public commons not to be controlled by corporations through patenting and trade marking.

In terms of streamlining Village bylaws, consideration should be given to combining the GE Bylaw with a Food Bylaw that is derived from the Food Charter.

3 PLANNING DIRECTIONS

This section contains ideas and actions that may not be directly applicable or relevant to bylaw changes. Through collaboration with Village of New Denver staff these ideas have been classified into eleven community needs.

The intent of categorizing the needs is an attempt to simplify the presentation of planning directions that resulted from the research into this project.

The list of needs is as follows and is presented in no particular order other than order of presentation:



The classification of actions in a specific need group is not intended to be set in stone, and in fact many of the needs overlap and distinct lines are difficult to be drawn between them. The hope is that the presentation of these needs serves as a starting point for further discussion and refinement amongst Village planners.

The next sections address each need and offer planning directions. The first two sections (Water and Energy) were identified as key priorities in terms of feasibility, value and public support and have been examined in specific detail to provide an example and encourage the further improvements in the future development of the New Denver Resilience Action Plan. Visions and specific planning directions are the focus of the remaining needs.



3.1 WATER

New Denver residents consistently value water as one of the Village's most important resources. Resident's and council's desire to keep this resource clean and healthy was reflected throughout the document review in Phase 1 and during the public workshop. The importance of clean water is lost on few.

In reflecting on his country's historical use of water, Cho Kuang Kueon, who is the chairman of the Clear Water Citizens Committee in Seoul, South Korea said:

"Historically, a king who utilized water well, ruled the country well"

Conservation of water is critical in meeting the future needs of the Village, however, this should be seen as only a first step in building a more resilient water system for the Village. The water system, from supply through to the distribution and handling of the waste and treated water must be evaluated on the basis of an energy constrained future. New Denver should strive to seek practical and ecologically based solutions that encourage conservation and look to locate a more secure source above the town which could be gravity fed in an emergency while at the same time being more remote from pollution risks.

This section offers visions of a resilient water system with recommended actions for achieving them. The Village water system is broken into three components; 1) supply/distribution, 2) waste water and 3) storm water management. Specifics on reducing use and encouraging conservation are found in the Water Bylaw and Building Bylaw Recommendations.

3.1.1 WATER SUPPLY/DISTRIBUTION

Water for the town is currently delivered from two wells, the Arena Well and the Lake Well. The Arena Well is located above Highway 6 while the Lake Well is below the highway. From a water quality standpoint, the threat common to both these wells are from town septic systems. The previous engineering risk assessment in 2004 classified the risk from septic and surface runoff on drinking wells as low.

The Lake Well, being below the highway and gas stations, is more vulnerable to hydrocarbon contaminants. As the result of two earlier studies (1998 and 2004) the lake well is utilized as a backup only, with the Arena Well being the primary source of potable water for the village. The 2004 report also suggested finding a replacement source for the Lake Well which ideally would be located above the highway and existing septic systems. A replacement for the lake well may become even more pressing if lands in proximity to the Lake Well are developed.

From an energy perspective, the water delivery system relies on wellhead pumps to move water from the wells up to the holding tanks. From the tanks, pumps then push the water into the distribution system and down to the buildings of New Denver. The power for these pumps comes from BC Hydro or diesel generators in the event of and electrical outage. In an extended scenario of no energy - water could arguably be delivered to buildings of

PLANNING DIRECTIONS - WATER

New Denver at lower pressure without pumps at the holding tanks. However, once the buffer of water in the tank is used (1 Week during peak consumption²), there is no other way to get water to the town without electricity or diesel inputs.

VISION

Find a gravity fed (ie. no energy) replacement/backup for the Lake Well in order to add resilience to the water supply system.

HOW TO GET THERE

SHORT TERM

- Educate residents about the importance of appropriate water use and conservation.
- Education of the value in installing rainwater barrels and roof top cisterns that help reduce load on existing supply system.
- Further educate residents about the current system and its potential vulnerability and the need to increase its resilience.
- Implement feasibility study of gravity fed or other low energy solutions.

MEDIUM TERM

- Move towards both balance system water metering whereby all inputs and outputs of water are metered and compared to indicate problems or leaks in the system.
- Move towards individual point of use meters. (See Section 4 for further details)
- Encourage a more distributed water supply system by implementing bylaw and planning changes to encourage water capture and storage on new and existing buildings.

LONG TERM

- Implement the final low energy water supply system to increase Village resilience.

3.1.2 WASTE WATER

Waste water disposal in the Village relies exclusively on septic tanks and fields. From many perspectives septic scores very high marks for resilience. The Village septic system has little or no energy inputs³ and is a highly distributed system that does not rely on a centralized treatment facility, minimizing Village capital costs.

From a longer term perspective, as the Village septic system ages and failures inevitably occur, it poses increased risk to both the drinking wells, potential food growing areas and to the lake. The level of risk that existing septic fields pose would be worthy of further study.

Additionally, town density will be somewhat controlled by individual septic systems; as might available food production area if septic systems are being built on ideal flat, sunny and food producing land.

From an energy capture perspective, consider that some municipalities, such as the False Creek area in Vancouver

2 - 350,000 Gallon reservoir, usage max 50,000/day = 1 week during peak consumption

3 - Ironically, the trend is to increase energy use in the newer septic regulations.

capture heat from sewage which assist in district heating. Could a similar system be imagined for New Denver, by building localized biological sewage treatment plants that work to protect lake water quality as well as provide heat for properly located winter greenhouse or composting projects nearby?

The Village should explore the transition to Village-scale, low-energy wastewater treatment in sensitive areas balanced with individual systems.. Several innovations have been developed and implemented successfully in Europe, like the wastewater treatment wetlands, which treat effluent naturally (through plants and bacterial decomposition) producing 100% drinkable water, and these systems may prove to be a viable and attractive alternative to septic systems, especially given the small, compact layout of the Village.

VISION

Achieve a balance between individual and community waste water treatment options in sensitive areas.

HOW TO GET THERE

SHORT TERM

- Educate residents in seeing the usefulness and value in ‘waste water’. Introduce grey water concepts and encourage its use.
- Educate residents about the importance of proper septic tank maintenance and observation.
- Further educate residents about the potential impacts of septic failures on drinking water and to the lake water.
- Implement evaluation of existing septic tank carrying capacity; map the risk levels versus septic age/vulnerability and identify high risk septic tank areas.

MEDIUM TERM

- Make necessary bylaw changes that make grey water and other innovative ways to reduce waste water easier to implement by residents. (See building by law Section 4)
- Evaluate implementation costs and benefits of low energy and small scale community systems.

LONG TERM

- Achieve a properly designed and balanced waste water system that minimizes energy inputs and maximizes the protection of clean water.

3.1.3 STORM WATER MANAGEMENT

This description of New Denver’s storm water system comes from a 2004 engineering study by WSA Engineering:

“The Village does not currently have a formal piped storm water collection system. Storm water generally finds its way into the ground or Slocan Lake via the streets and roadside swales. Where problem areas have been identified, drywells have been installed to intercept and directly dispose of the storm water into the ground. There are eight drywells distributed throughout the Village. These drywells are usually made of perforated concrete manhole sections installed in the ground with a grated opening in the cover. Their effectiveness varies...”

The current storm water management system has minimal energy inputs and is quite resilient from that perspective. The biggest shortcoming is its ability to contain and treat highway runoff which is associated with hydrocarbon pollutants and vehicle use. In other words there is no system in place to capture this runoff. Another problem is that the existing drywells (about 10) are varied in their effectiveness. And more are needed in areas with unresolved drainage issues. Additionally, the drywells require regular and diligent maintenance (pumping out silt) in order to remain effective.

VISION

Develop a collection and disposal system to treat highway runoff by means of an low energy and ecologically designed infiltration bed.

HOW TO GET THERE

This could be achieved by avoiding the development of a hard sewer/storm water system and continue to use natural infiltration (as suggested in the Mitigating the Impact of Storm Water Runoff Report, 2004). Building in further resilience could include the development of storm water ponds to further ensure the protection of water quality.

SHORT TERM

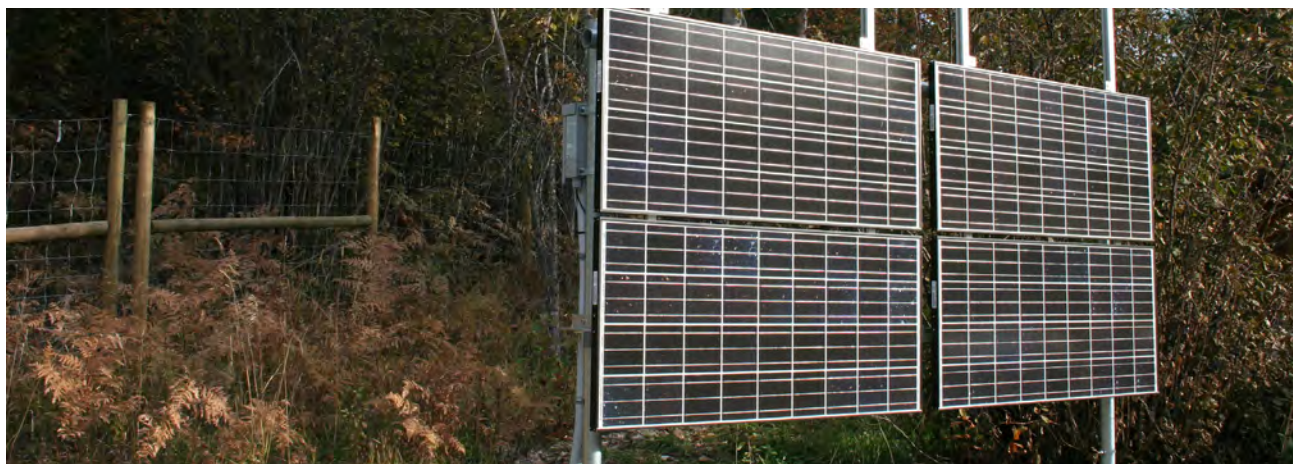
- Educate residents about how effective the current system of swales and green areas currently is.
- Education of residents in potential impacts from the highway runoff on things like: water contamination and land contamination (with possible food production impacts).
- Implement cost/feasibility study for water collection and infiltration bed for highway.
- Study a more effective replacement for existing drywells in future installations.

MEDIUM TERM

- Begin replacing existing drywells or installing the more effective designs when required. Where space allows, install swales along roadsides to provide necessary drainage.

LONG TERM

- Install highway runoff collection and treatment system.



3.2 ENERGY

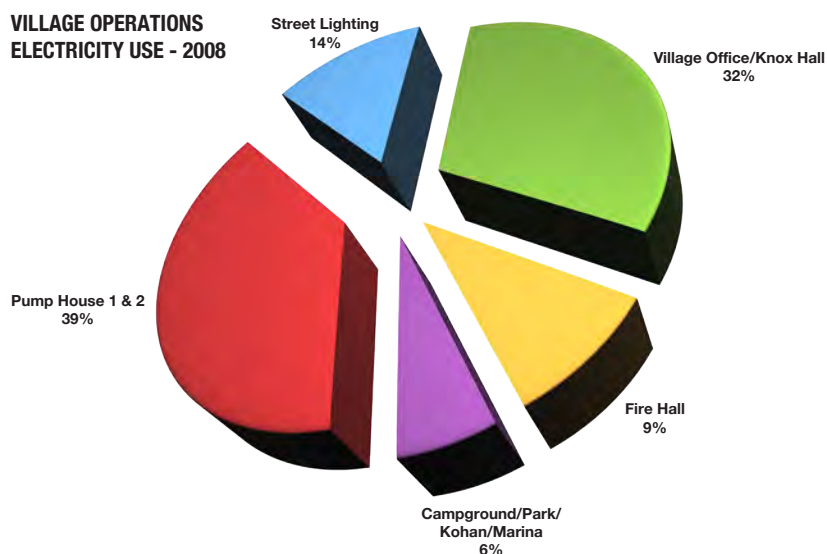
The importance of energy in maintaining our modern way of life is profound. The economy has been dependant on access to cheap and abundant energy in order to drive it. Relatively flat world oil production levels since 2004 and the oil price shocks of 2008 are indicators that we are at or approaching peak oil. Spiking oil costs are predicted to increase in the future and will alternately help and hurt the economy. (see “Why your world is about to get a whole lot smaller”, by Jeff Rubin). Additionally, BC Hydro has recently announced that customers can expect an increase in their electricity rates by 33% in three years.

How will this affect the Village of New Denver? In 2008, the village spent approximately \$25,000 on electricity. In three years this can be expected to rise to at least \$33,000. Jeff Rubin (who correctly predicted the rise of 2008 oil prices) has predicted that during the next oil price shock that Canadians will see \$2.00/L gasoline. In 2008, the village spent nearly \$10,000 on gasoline and diesel fuel. These costs could double in the foreseeable future. Additionally, as discussed in the previous section, the BC Climate action charter will further add to these costs in the form of carbon taxes or offsets.

It is clear that the rising costs of energy will severely test the resilience of Village operations. A detailed review of the way the Village uses energy is included in Appendix C. From this review a list of prioritized actions has been developed to help the village towards greater energy security in its current operations. Specific actions are broken into electricity and fossil fuels in the following pages.

3.2.1 REDUCING ELECTRICITY USE - VILLAGE OPERATIONS

The following graph illustrates the village electrical energy use for 2008.

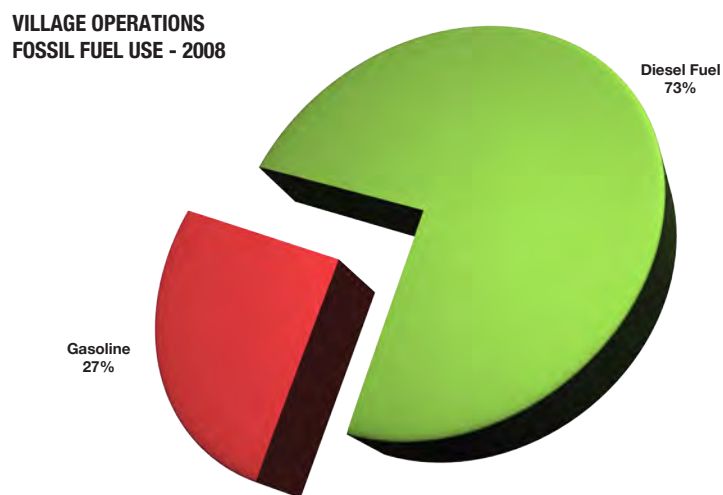


PRIORITIZED ACTIONS ARE AS FOLLOWS:

1. Village Office/Fire Hall - Evaluate effectiveness of office and fire hall renovations using before and after data. Additionally, install solar panels as a pilot project as a means of reducing energy use.
2. Pump House 1 & 2 – Conduct an efficiency study of the current pump system (for more details on reducing or eliminating overall energy use see previous section on the water system and Water Bylaw recommendations)
3. Street Lighting – Explore the life cycle costs of changing out lights to low energy options and motion sensors where appropriate.
4. Knox Hall – Ensure there is a system (procedural or automated) in place to turn off all lights and lower heat register to avoid wasted power usage.
5. Campground/Centennial Park/ Kohan/Marina – Explore cost of changing out lights to low energy type and motion sensors where appropriate. If showers are electrically heated, could propane be more efficient?

3.2.2 REDUCING FOSSIL FUEL USE – VILLAGE OPERATIONS

The following graph illustrates Village fossil fuel energy use for 2008



PRIORITIZED ACTIONS ARE AS FOLLOWS:

1. Diesel - Change fleet (or a portion of) to locally sourced biodiesel. This would:
 - a. Demonstrate and test the concept to the public
 - b. Support a local business that utilizes waste vegetable oil in the region (therefore not supporting food for fuel schemes)
 - c. Require no vehicle modifications (ie. no capital cost)
 - d. Require little or no increase in operating cost as biodiesel is sold locally at par with regular diesel.
 - e. Add resilience to fuel choices by utilizing locally available resource.
 - f. Meet a commitment to the BC Climate Action Charter as a deliverable item.
2. Gasoline – Evaluate the conversion of a village pickup to wood gas. This would:
 - a. Allow the vehicle to be run of wood waste or wood chips.
 - b. Demonstrate and test the concept to the public.
 - c. Add resilience to fuel choices by utilizing locally available resource.
 - d. Reduce GHG emissions by the amount of gasoline that was offset (up to 6.2 tonnes)

3.2.3 COMMUNITY ENERGY SYSTEM

An engineering feasibility study done in 2002 revealed that the village Village of New Denver generated the majority of its own power up 1955 from a dam on Carpenter Creek. With rising electricity prices and current provincial push for independent power producers, this study should be revisited. Adding energy resilience in the form of a community owned and controlled utility would be a gift to future generations. Currently there are no water monitoring activities on Carpenter Creek that could be used in support of such a project. Immediate water monitoring should be coordinated through a community group like the Valhalla Wilderness Society. Such a system would show commitment to the BC Climate Action Plan.

3.2.4 COMMUNITY ENERGY DECENT AND DIVERSITY PLAN

Given the importance of energy and its role in Village operations and the community at large, a detailed community energy plan that builds diversity in energy choices and addresses future energy scarcity. This plan could be built in conjunction with an economic diversity plan as the two are so closely linked. Such a plan would show commitment to the BC Climate Action Plan.



3.3 FOOD

Food was one of the most important issues for residents during the workshop. It appeared in some form or another in each of the four categories (Environmental, Social, Cultural, & Economic). This indicates that residents already see the value in increasing food security and localization, and offered creative suggestions for achieving that goal. These suggestions include:

COMMUNITY GARDENS

- Protect and zone lands within Village boundaries to develop community gardens (such as areas suitable that are adjacent to Carpenter Creek, such as sunny north side) (See Zoning and OCP Recommendations)
- Obtain grants for soil analysis at these sites to determine how suitable it is for such a community garden
- Food produced in community gardens could be sold to locals with extra produce sold to nearby communities. This provides not only food security, but creates job opportunities, and economic benefit.

PUBLIC LAND FOR FOOD PRODUCTION

- Provide public space in which people can plant food producing plants (ex. Plant nut trees on boulevards where there is no conflict with Village infrastructure - drainage, water pipes, power lines, etc. - or provide underused park space for smaller neighborhood gardens) (See Zoning and OCP Recommendations)
- Encourage individual and community greenhouses (perhaps at the Denver Siding site) which extend growing season.
- Explore a village composting scheme.

FOOD & KNOWLEDGE

- Further research to examine food production possibilities in New Denver. The UBC Land & Food Systems Student program could be expanded and 'marketed' to the public to keep residents aware of what is currently being done in New Denver to achieve food security.
- Draw on the knowledge of long-term residents (particularly the older Russian and Japanese families) to help teach residents how to maximize garden productivity, provide opportunities for learning, and successfully preserve food for winter.

FOOD & CULTURE

- Develop other festivals to attract visitors and celebrate local culture. Tying this into food (May Day, spring, planting season begins, etc., or Fall, Harvest, canning, etc.) could create economic benefit on the heels of the very regionally popular Garlic Festival, while celebrating and strengthening the idea of food security, and fostering the culture around local food.



3.4 AIR

Air is arguably our most important basic need. While New Denver currently enjoys abundant clean air, with little pollution, the need to protect air is still important. As well, air quality can change quickly in a summer with high forest fire activity. With a community that is heavily reliant on transportation, there is an opportunity to greatly improve the cumulative effects of air pollution by supporting a regional Transit Plan. New Denver has moved forward on clean air with an anti-idling bylaw, and a wildfire management plan that attempts to reduce the immediate risk around the Village.

MONITOR GHGS & AIR QUALITY

- Continue monitoring of energy use and greenhouse gas emissions annually, and make realistic goals towards reducing energy use and GHG emissions each year. Publish a report outlining what the goals were, whether they were met (what the actual numbers were), and what the following year's goals are, as a means of bringing public awareness to Village actions. This monitoring is part of the commitments made under the BC Climate Action Charter.
- Air quality is greatly affected by vehicle use and effective public transportation is a key to reducing residents impact on the air quality (see next section)



3.5 TRANSPORTATION

54% of the energy used by the community of New Denver is used in transportation. Given the relative isolation of New Denver, transportation is a vital service to New Denver. The current transportation system is almost exclusively reliant on oil and the effects of rising oil prices will dramatically affect how people of New Denver get around or don't get around. Transportation is also directly to air quality and hence GHG emissions (accounting for 82% of New Denver community emissions).

A resilient transportation system typically heavily favors public transportation options with private transportation used appropriately (i.e. for large loads or carpooling). Resilient transportation systems are generally easier to manifest in denser population bases (like Europe), so New Denver and the region have great challenges trying to develop resilient transportation systems.

Although improving transportation is generally an issue involving higher levels of government, suggestions for moving towards resilient transportation in and around New Denver include:

TRANSPORTATION MASTER PLAN

- Develop a Transportation Plan that focuses on enhancing New Denver's already highly walkable pedestrian environment, and on creating multi-modal transportation, and creating further pedestrian/cyclist connections between different areas of the Village (such as a footbridge across Carpenter Creek).
- Explore ways to improve pedestrian travel in winter by finding ways that streets could be plowed to give people safe ways of moving about town.
- Promote or develop in Co-op programs (like co-op transport and car share initiatives etc). An example would be an Area-H owned bus that connects the communities up and down the Slocan Valley. This would provide local employment and improve public transit throughout the area, reducing dependence on cars and trucks.
- Continue to work towards a pedestrian connection between New Denver and Silverton.
- Continue support of pedestrian connections (via rail trails) to the north towards Roseberry and Hills and to the east towards Sandon and Retallack.

IMPROVE REGIONAL AND LOCAL PUBLIC TRANSIT

- Support initiatives for improved Public Transport networks with other levels of government. It should be noted that during the course of this project the authors were required to travel several times to New Denver. Despite being geographically close (50 km to Winlaw and 100 km to Revelstoke) there was no reasonable means of utilizing public transport to get to New Denver in a timely manner.



3.6 LAND

Land is an important basic need. It provides the basis for food production and the base upon which we live and make our livings. Balancing the need between access to living soil for food production, and healthy stable land upon which houses are built is important. Suggestions for increasing land resilience include:

PROTECT LAND HEALTH

- Implement a ban on cosmetic pesticides for both private and public property in New Denver (currently under development)
- Develop a community composting program that could tie in with a community garden and future community based waste water projects.

PARKS & RECREATION MASTER PLAN

- Develop a permaculture based landscaping plan for public spaces to serve as inspiration and example for residents.
- Develop a permaculture based plan that would focus on food and fibre concepts that would encourage the maintaining of good levels of service in these areas.
- Recognize the value of public parks, open spaces, landscapes and trails as important places for residents to gather, socialize, relax, recreate, and provide a cultural and significant importance to residents.

COMMUNITY WILDFIRE PROTECTION PLAN

- Seek funding to implement the recommendations developed in the Community Wildfire Protection Plan
- Update the community on the Wildfire Action Plan Initiatives and develop a website/information package to be delivered to residents updating them on local/regional initiatives
- Develop signage for public information/education regarding fire safety
- Consider the effects of fire suppression on forest/ecosystem health



3.7 SHELTER

Adequate, affordable and healthy shelter have all been expressed as important to the community of New Denver. New Denver as a community uses 46% of its total energy budget for lighting and heating and powering its homes and buildings in the form of mostly electricity (with the other 54% going towards transportation). A resilient view towards affordable housing should balance both construction and operating costs. With BC Hydro predicting a 33% increase in electricity costs in the next three years any resilient housing solution will reduce its dependence on energy. Reducing this dependence can be realized through fostering the use and balance of natural building techniques, ecological design (i.e. passive solar access, use of local materials/labour etc.) and energy harvesting and conservation ('green') technologies. Many bylaw recommendations have been offered throughout Section 5 of this report. The following suggestions offer more broad planning directions:

NATURAL BUILDING TECHNIQUES AND ECOLOGICAL DESIGN BEFORE 'GREEN' TECHNOLOGIES

- Support and foster the use of natural building techniques, local materials, ecological design before adopting high technology (and consequently high capital cost) 'green' solutions. (See Section 4)
- Develop Green Building and Green Design standards for any new construction to develop a balance between initial capital costs and operating costs.
- Develop a demonstration eco-house within the community in cooperation with other community groups and trades people that would minimize or create surplus energy use, maximize use of local materials, technologies and labour while incorporating food production.

AFFORDABLE HOUSING PLAN

- Develop an Affordable Housing Plan/Strategy that examines different ways of providing affordable housing, from providing more mixed use, to housing co-ops, etc.



3.8 PHYSICAL & MENTAL HEALTH

Without access to adequate health services to maintain physical and mental health, residents could not enjoy a high standard of living. Through the public workshop there were no direct comments on public health improvements. While the need for these services cannot be understated, the fact that this did not come up suggested that residents feel the community appears to be well served in this regard. Given the isolation of New Denver and the small size of the community, the residents may not expect to have all the conveniences of high-tech medical infrastructure available to major cities. They are treated by local doctors, and if they need further treatment, they understand that they will need to travel to a larger community for this service. Perhaps this is an inevitable trade-off of living in New Denver. That being said, there are opportunities to continue support for existing services, and there are many suggestions in other sections that overlap with physical and mental health. For instance, maintaining a pedestrian friendly community with existing trails and access to the mountains, lake, and creek will benefit residents' physical and mental health. Also, the development of the Slocan Community Health Care Centre addressed the gap in health care for residents at that time. The Village and region has responded well to eliminating the gaps identified in previous studies. Some suggestions for health care include:

CONTINUED SUPPORT

- Encourage the continued presence of a range of health care services at the Slocan Community Health Care Centre



3.9 ECONOMY

From many perspectives our society sees the Economy as the engine that keeps communities running. While environmental, cultural and social initiatives are often at odds with economic ones, finding a balance between all four is important. Without the ability to financially support Village programs, the programs, as resilient as they may be may not be executable. The economy is also important to provide jobs for residents. It provides them with the means to support themselves, and provides them with a sense of accomplishment and self-worth. Suggestions for the economy include:

LOCAL PURCHASING POLICY

- Relocalize the economy by creating a Local Purchasing Policy or bylaw
- Create a Local Purchasing Policy that favors the promotion of local sourcing of energy, goods and labour.
- This plan would factor in total energy inputs, GHG emissions, and local content (in addition to lowest overall cost) when evaluating how decisions are made.
- Remove barriers and provide incentives for buying local by supporting some type of community forestry (Revelstoke Community Forest as an example) & value-added manufacture of forest products.
- This would show the Village is ready to lead by example.
- This plan would fulfill a commitment under the BC Climate Action Plan.

FOSTER RESILIENT COMMUNITY DRIVEN MOVEMENTS

- Encourage the community adoption of creating a “Transition Town New Denver” which focuses on reducing dependence on energy and adapting to climate change by localizing, focusing on food security, developing local currency, and valuing local knowledge and skills. (www.transitiontowns.org)
- Connect this with similar movements in Nelson and the world.
- Participate in local co-op ventures (e.g. care share)

TOURISM

- In an energy constrained future, how tourists get to New Denver will be dependant on an affordable and adequate regional transportation system. A resilient economy would not be dependant on tourism, but would see it as a providing some diversity.
- During the public workshop there were conflicting views on how appropriate increasing a tourism-based economy was for New Denver. While tourism is often an unreliable source of economic income, it is a means of diversifying the economic base. The strategy of the Chamber of Commerce to provide an “old fashioned family vacation” is one that should be explored further with residents to discuss the appropriate level of tourism, and the pros & cons of this economic base. This strategy could include the creation of other festivals in addition to the Garlic Festival. It could also include a marketing strategy that seeks to attract people to the Village and focus in low energy ways of travel such as motorcycle, bicycling or even by horse or foot.



3.10 HERITAGE/ARTS/CULTURE & COMMUNITY

Heritage, Arts, & Culture provide the color and texture that define a community. In getting to know the community during the creation of this plan it was evident that resilience and self reliance are fundamental building blocks of New Denver. The town has continually had to adapt during its over 100 year history to thrive as a unique and engaged community. Ensuring that this spirit is allowed to grow and thrive is essential for continued success in building community resilience. The following are suggestions offered towards these ends.

HERITAGE STRATEGY & REGISTRY

- Develop a Heritage Strategy & Registry that provides heritage protection and guidelines for the commercial heritage buildings along 6th Ave, but that also includes other heritage resources, such as important residences, important spaces (cemeteries, old Japanese internment camp area, and buildings outside the 6th Ave area). The heritage strategy should also focus on adaptive re-use of buildings, keeping them functional, rather than simply preserving an empty building, and providing incentives for the beautification of private heritage buildings that include natural and ecological criteria.

LOCAL BUILDING GUIDELINES

- Focus building guidelines on more than just aesthetics, by including natural and local building techniques and local materials, which will provide incentives for local businesses, but will also preserve the knowledge of working with local materials, and how to make those materials the most effective. See OCP and Building bylaw sections for specific examples of bylaw changes.

HERITAGE-SENSITIVE URBAN DESIGN STANDARDS

- While there is a desire to maintain the Village's heritage buildings, new buildings should be built to modern standards, in modern styles, while being sympathetic to their context in a heritage community. Trying to replicate buildings from 100 years ago risks creating a "themed" Village akin to a Disneyland. Modern buildings can fit in with existing buildings to maintain the same scale and detailing found in current heritage buildings while using local materials and techniques to create "future heritage buildings." Many cities and Villages in the U.K. do a good job of combining old with new sensitively (See City of Edinburgh Urban Design Guidelines - http://download.edinburgh.gov.uk/urban/Urban_Design_Standards.pdf)

CULTURAL LANDSCAPES

- Recognize the importance of landscapes and maintaining visual connection (viewsapes) to them. These could include historically significant areas, but also should include culturally significant landscapes, such as the waterfront, areas with important views (of the lake and Valhallas, of agricultural land etc.), locations of locally significant industry, important wildlife habitat and the importance of local flora and fauna to the collective identity of the residents, etc.

CULTURAL ACTIVITIES

- One of the resident-generated solutions was to create new and enhance existing festivals (like May Day) that display & celebrate the skills, arts, & culture of the area and its artists.

PUBLIC WASHROOMS

- This was mentioned in one of the brainstorming groups and has obviously been a hot-button issue in the community with the lack of adequate facilities for resident and tourists alike.

GREATER SUPPORT FOR THE ARTS

- The Village could provide increased support for the arts through financial incentives in the budget, and through the promotion of local art and artists, perhaps implementing public art as a beautification strategy for 6th Ave. Organizing a committee or paid position with the Village to seek grants and other funding sources (organizations, and Provincial & Federal funding sources) for developing artists, arts, & culture in New Denver should also provide additional resources that could strengthen the arts community. This could be facilitated through financial support in the budget.

COMMUNITY ORGANIZATIONS

- The Village could facilitate/organize the creation of local arts & culture groups in New Denver. These groups could include craft guilds (woodworking, pottery, weaving, etc.) and promote them via the Village Website and the Chamber of Commerce.

INCREASE ACCESS TO COMMUNITY INFORMATION

- One of the challenges, specifically with the Asset Mapping Report (reviewed in Phase 1) was its difficulty to find. It appeared in a small number of local stores. Upgrading the Village's website to include community links and information to the Official Community Plan, events, etc. would make this information easier to locate. While updating web resources is important, it is also important to ensure that this information is made available to all groups of people (internet, print, & media).
- A part of this process would include an update of the Asset Mapping Report so that numbers and agencies are still relevant and contact information is current. Part of this upgrading should include a community directory of people who are willing to share their knowledge. This could include drawing on ethnic Village members to teach their language & celebrate their culture, and other elements of multiculturalism that makes New Denver so unique; In particular, the Russian and Japanese members of the community.

WELCOMING AND COMMUNITY FRIENDLINESS

- One workshop concept was to organize an individual/group who greets and welcomes newcomers to the community.



3.11 GOVERNANCE & EDUCATION

Resilient governance and education are arguably the most effective at the local level municipal level. Solutions to future problems will be found through localized knowledge and implementation. Education is will be a key to an adaptable community. Continuing to fostering an environment for building community resilience and acting as examples for the community will be the job of this and future councils.

CONTINUE TO CREATE EFFECTIVE COMMUNICATION

- The Village staff does a good job of communicating the initiatives they undertake every year. Keeping residents informed about energy retrofits, infrastructure upgrades, health & safety, and Firesmart plans etc. is the key to keeping residents informed, engaged in finding solutions for future adaptability.

COMMUNITY CENTRE

- There were several suggestions in the workshop on how to keep youth interested, active, and engaged in their community. These suggestions ranged from different youth programs, to facilities (skatepark, etc.), to a paid youth position with the Village. Similar suggestions arose in services for seniors. These suggestions seemed to hint at the desire to develop a community centre (either a new facility, or the utilizing under occupied portions of the school) The community centre could provide opportunities for youth & senior activities and programs, and more importantly bring the two groups together to engage each other. Past communities used to highly value wisdom for elderly people and creating a community centre could provide the opportunities to re-create that lost connection.
- This could be done through greater access to existing facilities. With the declining school population there is the potential to provide better access to the school for everyone in the community for additional learning and sports programs.

RESILIENCE YOUTH ACTIVITIES & EDUCATION

- Educate the youth about the importance of resilience and how it can be applied in New Denver. This could be culminated in a Rap contest, in which contestants use hip hop and poetry as a way to express what a future and resilient New Denver would look like.
- Along with the creation of a youth facility, the workshop showed that there was a desire to create programs to engage youth, and educate through experience. These programs included fishing, wilderness experience, and food production activities/courses within the community. These programs are similar to the Scouts/Guide programs, and the Outward Bound programs. There is the potential to create a volunteer-based program, and/or environmental education centre (in conjunction with the community centre), or develop an education program that provides school credits for courses in experiential learning courses through the school board. Promoting arts & culture, along with math & science was stressed as important to ensure that youth education was rewarding for all youth.
- If these programs are to be developed it is important to include youth in the development, planning, and organization to ensure that their needs and interests are met and they will engage with the process.



4 BYLAW RECOMMENDATIONS

The following section outlines specific bylaw recommendations that can be made in an effort help build and foster community resilience. We have classified these as; short, medium or long term solutions highlighting both pros and cons of each recommendation along with specific execution notes. These recommendations are provide a starting point in the quest to build greater community self reliance and adaptability. It is expected that Village staff, council and residents will build on and improve these ideas as more insight and knowledge is gained through the years of applying resilient thinking to town planning.

BYLAW NO. 516 - ANIMAL CONTROL				
SUGGESTION	BENEFITS	DISADVANTAGES	EXECUTION	TIMING/SCALE
Allow limited number of sheep, cows or goats on individual lots in town	- means of vegetation control (lawn maintenance/fire control) - source of fibre, manure and food	Possible Health Issues (need public health officer involvement in development)	Study other jurisdictions and suggest a carrying capacity for certain types of animals	Short-Term Small Scale
Allow bee keeping	source of food and pollinators	possible public fear of allergic reactions	Study other municipalities with similar bylaws (ie. Vancouver)	Short-Term Small Scale
Open spaces as areas for raising animals	- Would allow the expanded use of animals for urban farming - Could allow land constrained people and non land owners to farm	Possibly limits other uses of open spaces		Mid-Term Small Scale
BYLAW NO. 579 - WATER REGULATIONS				
SUGGESTION	BENEFITS	DISADVANTAGES	EXECUTION	TIMING/SCALE
Installation of balance metering on Village water system This would involve installation of meters and data logging at each wellhead, inlet into water storage tanks and outlet of water tanks	- Provide evidence of potential water system losses - Provide indicators of system efficiency - BC Climate Action Charter Commitment	Initial capital cost	Apply for government funding	Mid-Term Mid Scale
Introduce point of use water metering	Provide incentives for water conservation	- Initial capital cost - Public unsupportive	Implementing on a scaled basis starting with education and then hook up biggest users and new construction first.	Small- (Education) to Long-Term (Implementation) Small to Large Scale
Education of residents on the importance of installing rainwater collection and storage on their properties	Increase resilience/self reliance during drought or fire fighting operations.		Possible use of citizens groups like Valhalla Wilderness Society	Short-Term Small Scale
Incentives for installation of efficient appliances (ie. low flush toilets)	- Reduced water use/demand on Village system - Lower operating costs for residents		Implement in building bylaw for new construction and renovations	Short-Term Small Scale
Evaluation of alternative gravity fed backup water supply not dependant on electricity or diesel power.	Provide resilience in Village water supply	High capital cost of project	Find a source of funding to pay for feasibility study for gravity feed water supply.	Long-Term Mid to Large Scale

BYLAW NO. 581 & 621 - SOLID WASTE				
SUGGESTION	BENEFITS	DISADVANTAGES	EXECUTION	TIMING/SCALE
Add penalties to discourage the disposal of recyclable items	• Reduce waste stream • Would strengthen section 11 of current bylaw.	• Difficult to enforce	Amending bylaw	Short-Term Small Scale
Re-start the old landfill site. In an energy constrained future, the old landfill site may become necessary once again	• Local place for waste to go • Build local resilience for dealing with waste (jobs) • Recover costs currently going to RDCK and keep them in the community • Could encourage more recycling/reuse/repairing of things if space is a constraint (capturing resource streams) • Reduce energy and GHG emissions	• Residents may not want this in their backyards (NIMBYism) • In an energy constrained future, will large waste streams take care of themselves? 30-100 years?	Find money to study this idea and how it could be implemented.	Long-Term, Large Scale
Implement statements to encourage the overall reduction of Village operations and community waste.	• Sets a message for positive direction • Will help reduce commitments after 2012 to the BC Climate Action charter • After 2012, solid waste will be included in calculations, increasing the Village's commitment to reducing GHG's by almost 6 times 2008 levels.	• Difficult to enforce	Near term: Implement this vision into OCP Mid/Long Term: Study ways to implant actions	Vision Statement: Short-Term Small Scale Implementation: Mid- to Long-Term Medium to Large Scale

BYLAW NO. 591 - OPEN BURNING				
SUGGESTION	BENEFITS	DISADVANTAGES	EXECUTION	TIMING/SCALE
Discourage or eliminate Category 2 Burning	• Would encourage composting/chipping rather than burning of garden wastes, which could be used for soil improvement measures	• Public Unsupportive • Enforcement difficult	Institute fees and/or fines for these types of fires	Short-Term Small Scale
Eliminate Category 4 fires	• Would encourage recycling and proper disposal of construction waste	• Public unsupportive • Enforcement difficult	Institute fees and/or fines for these types of fires	Short-Term Small Scale

BYLAW NO. 595 - BUILDING BYLAW				
SUGGESTION	BENEFITS	DISADVANTAGES	EXECUTION	TIMING/SCALE
Incentives for the use of local materials and natural building techniques	- Reduced energy and carbon footprint of new construction - Stimulate potential for new local businesses - Maintain local historical building practices where this was done out of necessity. - Encourage local vernacular	Some effect on existing businesses whose supply chains are not local	Implement by means of reduces building permit costs by evaluating local content, 'building miles' or carbon footprint for local initiatives	Short- to Mid-Term Small Scale
Incentives for increased environmental performance of buildings (i.e. insulation, low energy use, passive solar design, local power generation)	- Reduction in Village energy requirements. - Lower operating cost buildings for owners (i.e. affordable)	Some solutions will have possible increased capital costs for buildings	Develop set of guidelines to help builders make choices and determine incentives.	Short- to Mid-Term Small Scale
Implement incentives for deconstruction and re-use (rather than demolition)	- Encourages the re-use and recycling of potentially valuable materials - Off sets inputs into landfills - Could create business opportunities for a material re-use centre - Favours use of labour over fossil fuel driven equipment - Could encourage more creative building practices that consider more easily deconstructed elements in house design		Implement very low cost permits for deconstruction (ie. \$1), and high cost permits for demolition (ie. \$1000). Coordination with RDCK would be helpful since it is the regional landfills that this waste would be most likely be diverted from their facilities.	Short- to Mid-Term Small to Medium Scale
Encourage a more distributed water system by use of rainwater capture and cisterns at individual buildings	- Smaller systems on individual houses will be easier to fix in a post carbon future. - Encourages more community resilience by de-centralizing the water capture/delivery system. - Reduces Village operating costs - BC Climate Action Charter commitment	Lack of public awareness of the need	Start with rain barrel education program. Move towards property and roof top cisterns in new development to allow gravity feed during emergencies.	Short- to Mid-Term Small Scale
Encourage bylaw changes to encourage greywater and other ways to minimize 'waste water'	- Captures, energy and nutrients turning a waste stream into a resource - BC Climate Action Charter commitment	Current provincial regulations challenge this innovative idea.	Work with province to change business as usual. Implement required Bylaw changes.	Mid-Term Small Scale

BYLAW NO. 611 - OFFICIAL COMMUNITY PLAN, 2007				
SUGGESTION	BENEFITS	DISADVANTAGES	EXECUTION	TIMING/SCALE
Consider stronger language regarding the importance of: Protecting water quality of the lake for fisheries and as crucial to the health and resilience of the town's water supply	- Consider stronger language regarding the importance of: - Protecting water quality of the lake for fisheries and as crucial to the health and resilience of the town's water supply	None	Implement in next round of OCP updates	Short-Term Small Scale
Insert language to acknowledge: Energy Scarcity as a future driver of community planning with a commitment to developing a Community Energy Plan	- Raises the issues associated with rising oil prices and scarcity into planning activities - BC Climate Action Charter commitment		Implement in next round of OCP updates	Short-Term Small Scale
Insert language to acknowledge: Climate Change as a future driver and commitment has been shown through signing onto the BC Climate Action Charter	- BC Climate Action Charter commitment - Puts energy and appropriate energy choices into planning activities. - Forces Village into action on addressing proper energy choices and realities.	- Based on 2008 GHG output was about 30.8 tonnes. At \$50/tonne, this could cost ~\$1500/year, unless real reductions can be found. (SEE ENERGY in the previous section of the report) - After 2012, New Denver's liability will go up drastically due to Solid Waste emissions being included. Raising potential yearly costs after 2012 to \$9500 a 600% increase.	Acknowledge New Denver's pledge to be Carbon Neutral by 2012 in OCP update.	Short-Term (Execution) Medium to Long Term (Planning and Mitigation)

BYLAW NO. 611 - SCHEDULE 'E' - BUILDING DESIGN GUIDELINES				
SUGGESTION	BENEFITS	DISADVANTAGES	EXECUTION	TIMING/SCALE
Consider applicability to zones other than Development Permit Area 1. Such as the Highway Commercial Area, and the Residential Area	- Encourage more consistent character to highway frontage buildings - Maintains residential character	Resistance from developers	Implement in next round of OCP updates	Mid-Term Small Scale
Create natural and ecological development guidelines	- Encourage more environmentally appropriate building practices - Lower operating costs for buildings	Possible increased capital costs to developers if not done carefully	In conjunction with ideas set out in Building Bylaw changes.	Short- to Mid-Term Small to Medium Scale
Consider expansion of design 'look' to provide more modern examples of how buildings can still have character and fit in with the existing heritage buildings.	Allow for modern, energy-efficient building designs	Interpretation of modern examples may be difficult to define	Develop New Building Design Guidelines to incorporate all areas of the Village	Short- to Mid-Term Small to Medium Scale

BYLAW NO. 612 - ZONING BYLAW, 2007				
SUGGESTION	BENEFITS	DISADVANTAGES	EXECUTION	TIMING/SCALE
Modify zoning bylaws to include community garden sites as a land designation.	Identifies need for local food production.	None	Identify areas for this potential.	Short-Term Small to Medium Scale

**Although the zoning bylaw section is relatively small, we found a lot of overlap of sections. Rather than repeat the same information in the Zoning Bylaw section, we chose to leave them in the more specific bylaw sections (animal control, building design guidelines, etc.).*

5 FUTURE RESILIENCE - MEASURING PROGRESS

We offered a methodical permaculture methodology in Phase 1 of this project. In the future, a methodical review such as this could be used to evaluate how New Denver is building community resilience.

Alternatively, if council agrees with the Visions as outlined and the Bylaw Recommendations, the implementation of these recommendations could be reviewed on a yearly basis as a matter of a resilience review. The effectiveness of changes made, and the evaluation of needs as time goes on will be necessary as resilience is built in the community.

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APPENDIX A – PERMACULTURE PRINCIPLES



Below is a brief overview of each principle and its importance in achieving resilience.

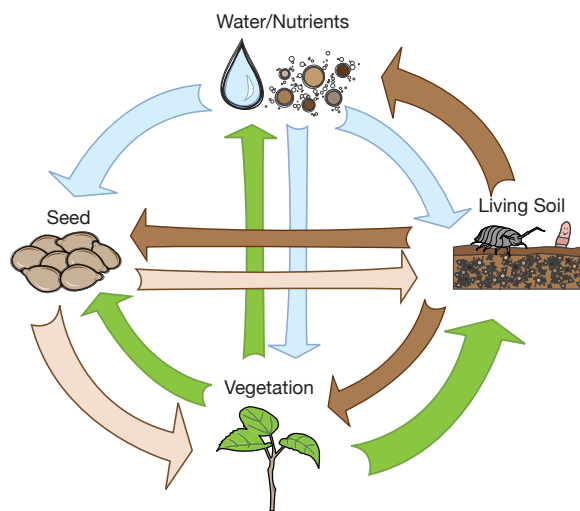
PRINCIPLE 1 – OBSERVING AND INTERACTING

The importance of experiential knowledge of a system is the most effective way of learning the effects of changes made in that system. We are reminded to keep open minded, avoid absolutes and dogma. This is where the Precautionary Principle is applied, whereby lack of certainty should not preclude taking right action.

PRINCIPLE 2 – CATCH AND STORE ENERGY

Provides a framework for considering what may have value in an uncertain world. The inland temperate rainforest has evolved to catch and store energy using the terrain and gravity and storing it in these key ways:

1. Water/Nutrients
2. Seed
3. Living Soil
4. Vegetation



Awareness of these connections let's us see their application in how we build our environment. A gravity fed water system would be a good example of this principle. From a social perspective, education is arguably the best way for a community to catch and store local knowledge.

PRINCIPLE 3 – OBTAIN A YIELD

Grounds the system in the present reality by recognizing that immediate yields are required to survive. These yields could be food from a garden or income from a business investment.

PRINCIPLE 4 – FUTURE GENERATIONAL EQUITY

This can be viewed as the stabilizing feedback on Principle 3. By considering the future needs of the community we are able to recognize limits on how much yield is appropriate.

PRINCIPLE 5 – USE AND VALUE RENEWABLE RESOURCES

Expanding the idea of renewable resources beyond the things that can be extracted from nature. Renewable resources are also found in local labour, knowledge, vernacular, cultural and social traditions.

PRINCIPLE 6 – PRODUCE NO WASTE

From a systems perspective this ensures that we identify waste streams and attempting to reduce or eliminate them by finding some value. Greywater systems are an example of turning waste water into something useful. The added benefit of reducing the load on a septic system is also realized. The ‘Super Use’ ideas mentioned previously are a good example of this principle.

PRINCIPLE 7 – DESIGN FROM PATTERN TO DETAILS

This principle is a reminder of the importance of stepping back from the system and observing patterns in nature and society. Stepping back helps visualize the scale of our actions. This visualization reminds us that our actions are felt most strongly at a personal and local level. When our food comes from 3,500 km away, the effects are more likely to be out of site - out of mind.

Principle 8 – Integrate rather than Segregate

The whole is greater than the sum of its parts. This asks us to recognize the power in cooperation and question the dominant cultural paradigm of competition and individualism.

Principle 9 – Use Small and Slow Solutions

A quote by E.F. Shumacher captures the essence of this principle:

“Any intelligent fool can make things bigger, more complex, and more violent. It takes a touch of genius — and a lot of courage — to move in the opposite direction.”⁴

Principle 10 – Use and value Diversity

Diversity decreases vulnerability to outside shocks. Diversity in our forests and landscape, in the economy and in the demographics of the population all help in building resilience.

Principle 11 – Use Edges and value the Marginal

New Denver is by geography already on the edge of rural life. Valuing edges ensures that an open mind must be kept to things that might not be of any apparent immediate value. The Zoned Park land on the alluvial fan around Carpenter Creek is an application of this principle.

Principle 12 – Creatively use and respond to Change

“Vision is not seeing things as they are but as they will be”. The Transition Initiative of Back Casting is a community example of this principle.

⁴ E.F. Shumacher. 1973. Small is Beautiful – Economics as if people mattered. This book was a landmark critique of the predominant industrial economic theories by a leading economist of his day.

APPENDIX B - PUBLIC CONSULTATION



PRESENTATION OF RESILIENCE

The consultants introduced the main drivers behind the project in a short presentation. The consultants stressed the importance of both climate change and peak oil in considering the future resilience of the Village. Emphasis was also placed on the importance of moving forward positively and creatively, rather than debating what is currently very well understood.

WORKSHOP

The residents were split into four groups of 6 to 7 people. Each group was assigned one of the four elements of sustainability, as defined by the Village of New Denver in their Request for Proposal. Those categories were, environmental, social, cultural, & economic. Each group was asked to brainstorm ideas on how to increase resilience in their respective category. These ideas were recorded on cards by all participants. The cards were then passed on to the next table so that each table got a chance to add their ideas of resilience, and discuss ideas suggested by the other groups. Each participant had a chance to submit their ideas on how to make New Denver more environmentally, socially, culturally, and economically more resilient.

Following the brainstorming session, the cards came back to the original table. The groups were then asked to rank the ideas in the order of importance/significance. Once a clear prioritization was established, the groups were asked to write a statement of significance that captured as many of the ideas as possible.

Different coloured pages were used to differentiate between the initial ideas (pink), ideas added by subsequent groups (blue - 3 rounds), and ideas that were generated by an individual or small group, but were not generally accepted by the entire group when discussed (orange).

STATEMENTS

The statements prepared by each of the four groups were then posted up at the front of the room, and read aloud to everyone present. These statements provide the guidance in the final phase of this project on how to prioritize suggestions both from the public input and the work and research carried out in Phase 1 of the project. All of the ideas and Vision statements are recorded on the following pages.

ENVIRONMENTAL

Environmental resilience will preserve the natural amenities of the Slovan Valley, including: Clean drinkable water; Unpolluted lake; Fisheries; Scenic resources to maintain New Denver as a nice place to live that will attract small businesses. Also necessary is a transition to sustainable energy resources.

1.a Make land acquisition to develop community gardens, obtain grants for soil analysis - best location - Denver Siding. Food produced from this for sale to locals, market extra produce to near communities. A green house is needed to preserve plantings through winter.

2.a Renewable, sustainable energy technologies.
 - Geothermal
 - Solar
 - Wind
 - Hydro
 * Assess feasibility of options

2.b Seek grants to develop & apply geothermal as a closed system.

3.a Protect drinking water from logging impacts etc. Protect water quality of the lake for fisheries & drinking

3.b Protect water sources

4. Preserve unique New Denver setting & town atmosphere (old time era) by keeping the lake pure & undeveloped, the town free of neon, cell phones, preserving the chamber of commerce strategy which is drawing increasing tourism.

5. Change in regulations to allow for innovative eco construction

6. Plant & wildlife protection. Protect native species.

7. "Green" Transport. Pedestrian town.

8. Environmental education centre established

Items Included but not Ranked

Install a sewer system so people can use their yards for gardening

Anti-idling bylaw

Tourism is a terrible suggestion from Chamber for resilience

demo[nstration] eco-house

Allow people to garden village boulevards

ECONOMIC

New Denver will be economically resilient with a strong permanent resident base which will support and promote local living. Through food security & sovereignty initiatives the diverse population is healthy & well fed. Value added and local cottage industries are strong & diverse to support the local economy. We are responsive and adaptable and continue to recruit new contributing community members. (And we all use the public outhouses regularly).

1. Food Security
 - Fund research re possibilities
 - Protect agricultural land
 - Allow people to garden/farm boulevards and other village-owned property

2. Keep Money Local
 - Incentives, remove barriers
 - Buy local, support local
 - Barter system - local currency system

3. Recruitment & retention of new contributing community members

4. Support (removing barriers, i.e. regulations) some type of community forestry & value-added manufacture of forest products (with Village permits to operate & have store front)

5. Establish an individual who greets/visits newcomers who come to live here, to learn and draw on their experience & skills - this is a welcome basket idea.

6. Establish a marketing tourism strategy (free from technology) such as the chamber of commerce is developing - an old fashioned old-time vacation.

- 2.6 Support & Promote local cottage industries

- 3.6 Recruit people who can bring the own work (internet commuters)

- 4.6 Local energy production
 - Geothermal
 - Hydro
 - Wind
 - Solar

Items Included but not Ranked

- Stronger permanent resident base
- Contributing to community, and
- Appointing local businesses and initiatives

Public Washrooms

Village [could] do more to assist [the] beautification of private heritage buildings

Beautify main street - revitalization of downtown with a heritage focus

SOCIAL

To build social resiliency through enhancing life, skills, activities, improving accessibility & creating learning opportunities for all residents, and in particular, youth and seniors. (See attached 1 - 5)

1. Support for youth activities

1.a Teach kids to better use our surroundings. Teach them fishing, teach sustainable skills, teach wilderness experience - hiking

1.b Location for youth to hang out (facility)

1.c Facilitate youth activities (that includes a paid position; not run by volunteers)

2. Better access for seniors and disabled

3. Co-op type programs (e.g. co-op transport truck/car share)

4. Declining school population. Expand school usage/extend to all

4.a Recruit young families through promotion of comm.[unications???

5. Regular mixed use events/activities for all ages

5.a Bring together diversity of community to public meetings (ensure greater involvement)

6. Better system of sharing volunteer info & other networking

Create a town directory of all persons willing to share their skills & knowledge*

Diversify population or support the existing trends?*

CULTURAL

Cultural resilience will include diversified investment, including local funding, to establish an arts/education centre that would provide space for artists, art-oriented guilds and festival development. The strengthening of arts and culture in New Denver will foster community inclusiveness and cultural enrichment.

1. Need community foundation to provide grants for developing artists, arts & culture

Line item in Village budget to support culture (i.e. Arts, heritage, events, initiatives)*

Support from Provincial and Federal Governments and other organizations

Village (public) support for public art and other cultural activities

2. Art Education Centre
- Gallery-ish
- Studios

2.a Encouraging Arts & Culture in cash-strapped school system

3. Community Inclusiveness (mixing of age, sex, e.g. May Day, Festivals)

Create new festivals that display & celebrate skills & arts of townspeople.
Mid-summer festival to draw tourist attendance in July*

4. Craft Guilds
- Organizing: woodworking, pottery, weaving, etc.

Draw on ethnic town members to teach their language & culture - Japanese, Russian - aspects which make our town so unique*

Draw on our Russian town members (or area) to teach us old ways for our community garden*

Building on our local heritage*

5. Strengthen Parks & Protected areas for culture of nature values & wilderness adventure

* Grouped with adjacent, but not numbered

Items Included but not Ranked

- Ensure opportunities & activities for youth (eg. bikepark, skatepark)
- Include youth in the processes
- Youth employment



APPENDIX C - ENERGY APPENDIX

Village of New Denver - Reduction of Energy and GHG Liabilities - In Current Operations							
2008 Data							
Electricity Breakdown	kWh	Cost	% Electricity Budget	GHGs tonnes	GHG Cost (see note 1)	Reduction Notes	Ranked Priority
Village Office/Knox Hall	75,192	\$ 7,895	32%	1.7	\$ 82.71	Evaluate effectiveness of office and firehall using before and after energy data.	1
Pump House 1 & 2	91,223	\$ 9,578	38%	2.0	\$ 100.35	Efficiency study of current pump system.	2
Street Lighting	34,486	\$ 3,621	14%	0.8	\$ 37.93	Explore cost of changing out lights to low energy and motion sensors where appropriate.	3
Fire Hall	22,433	\$ 2,355	9%	0.5	\$ 24.68	Knox Hall, ensure there is a system in place to turn off all lights and lower heater to avoid wasted power usage.	4
Campground/ Park/ Kohan/ Marina	14,601	\$ 1,533	6%	0.3	\$ 16.06	Explore cost of changing out lights to low energy and motion sensors where appropriate. Are showers propane or electric heated? Consider propane if on electric.	5
Electricity Sub Total	237,935	\$ 24,983		5.2	\$ 261.73		
Fossil Fuel Breakdown	L	Cost	% of FF Budget	GHG Tonne	GHG Cost	Reduction Notes	Ranked Priority
Diesel Fuel	7,186	\$ 7,186	73%	19.3	\$ 967.14	Changing to biodiesel would: Would demonstrate and test the concept Support a local business (in Winlaw) that uses waste vegetable oil. No vehicle modifications required. Operating cost would be the same, and there would be no GHG reduction. Add resilience to fuel choices.	1
Gasoline	2,623	\$ 2,623	27%	6.2	\$ 309.68	Evaluate changing a village pickup vehicle to wood gas. Would demonstrate and test the concept. Add resilience to fuel choices by utilizing wood as a fuel. Reduce GHG costs by the amount of gasoline that was offset.	2
Fossil Fuel Subtotal	9,809	\$ 9,809		26	\$ 1,276.82		
Total	247,744	\$ 34,792		31	\$ 1,538.55		
Notes							
Note 1 - GHG cost based on Electricity Carbon Tax Equivalent		\$50.00 /tonne					
Fossil Fuel Carbon Tax Equivalent		1.0% (total GHG cost/elec cost)					
		13.0% (total GHG cost/fossil fuel cost)					
				endemic mountain design		 Have Blue Consulting & Design Ltd.	