

SSP2

Peak Oil Impact on Cities, Survival & Culture: Dealing with Community Change under stress Seeking out New Leaders

Vancouver City Planning Commission: Strategic/Sustainable Planning Committee
Post Carbon Institute
New City Institute
Dynamic Cities Project
Metro Vancouver Planning Coalition

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Acknowledgements

This second workshop seminar of the Vancouver City Planning Commission, Strategic Sustainable Planning Sub Committee was made possible by the hard work and contributions of many new participants. The topic was an extension of the Summer 2005 workshop on Peak Oil Impact on City and Culture. It was held at Brock House on Jericho Beach and the venue was hosted by a donor who wishes to remain anonymous. The graphic package was made possible by a generous contribution by TR Trades Reprographics on Fourth Avenue, Vancouver. This second session was a joint venture of the Planning Commission with the input and support of the New City Institute and the Post Carbon Institute.

For all their efforts, I would like to personally thank the VCPC SSP Vice Chair Eileen Keenan, Charles Dobson from New City Institute, Director Julian Darley and staff members Sarah Smith and Laura Bird from Post Carbon Institute, Bryn Davidson from Dynamic Cities Project, and Stephen Geiger from Edge Consulting. Julian and Bryn helped me with the main presentations and aided in-group support during the esquisse period.

We also need acknowledge the participation of two members from Post Carbon Chapters in California; Janaia Donaldson and Robyn Mallgren, who video taped the workshop. This will aid the planned writing of the future Manuals for SSP Workshops, timed, we hope for a first edition this year to aid other communities in these efforts.

The materials for this and related issues can be found on the web site at www.postcarbon.org This site also has a 40 minute video of James Kunstler's session with the Vancouver City Planning Commission from the summer of 2006. The report of last year's seminar and soon this report in draft form can be found in postings at www.newcity.ca.

Thank you to the participants in the seminar, as the group think tank session aids in the alternate futures and visioning that is becoming ever more important at this time as we realize how much we have to start changing our ways and reconfiguring our cities to deal with the reality of the end of cheap energy.

Richard Balfour MAIBC
Chair, SSP Committee, VCPC
2006.09.25



Background

In the summer of 2005, the Strategic Sustainable Planning Committee of the Vancouver City Planning Commission (VCPC) hosted a seminar dealing with peak oil and Oil Shock impacts on cities and society. The conclusions from that and subsequent VCPC meetings show that our present approaches to planning are not going to be sustainable.

It is becoming clear that our pattern of community built in an era of cheap energy cannot be maintained, nor can it maintain our society. The baby steps we are taking in new green directions, while meaningful, are too little, too late and what we need to address as a whole society is making the total quantum changes to achieve a soft landing, rather than a crash. This applies to all aspects of society; social, cultural, economic and environmental. We cannot keep attempting to plan along a divided approach to problem solving, but rather must apply a holistic approach. This also applies to cities and social/ecological basins like Metro Vancouver; the disparate policies and missing links in solving big city problems have compounded the dysfunction of our present society, and will only make matters worse in the future. In attempting to raise public consciousness in this area, there are multiple levels that need to be awakened, from personal, to family, village, city and region- from citizen to leaders, bureaucracy and private institutions. Great changes are needed, and while change is feared by many, in this case change needs to be embraced so we may make the best adjustments for our society in creative ways as we adjust to new shortages in everything we now take for granted.

To this end, the SSP2 Group is a consortium of the SSP/VCPC, along with the Post Carbon Institute and the New City Institute. This is not yet another attempt to prove we are doing all the right things already, but to move beyond that to deal with more effective changes, the strategic level of planning required for a soft landing of society. Other interested groups who recognize the need to make the big leap or paradigm shift will be invited to come on board. The goal is to raise consciousness of energy costs and energy shortages impact on cities, but also to help spur on leadership in this area. It was intended that this year's event build on and develop themes from the 2005 session, which seemed to be well received. A decision was made to build on the role playing session that was part of last year's event and incorporate recommendations from the post-event feedback we received. The 2005 session dealt with one general state of changed community after peak oil shock, this one deals with the dynamics of the changing condition itself.

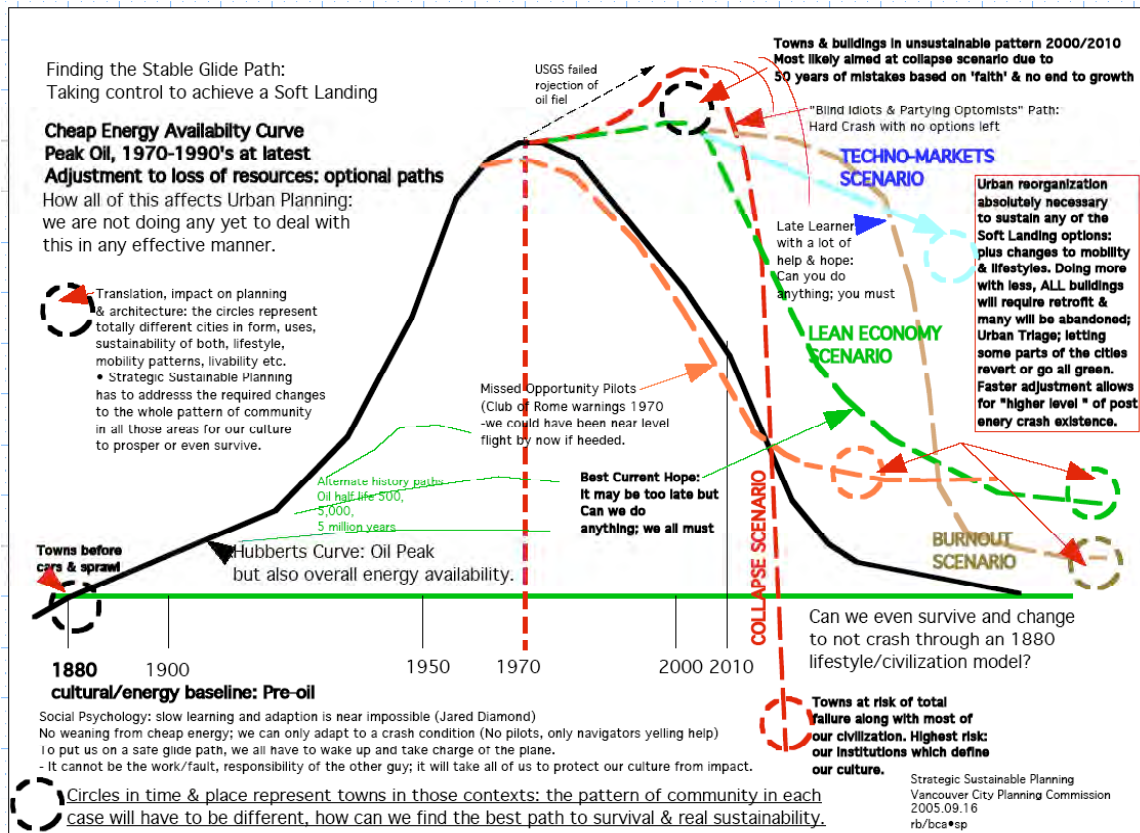
Why Peak Oil?

The peaking of global oil and gas production represents a challenge unprecedented in the history of human societies. It is arguably the single biggest threat to our region's security, environmental health, and continued economic growth and has no easy or quick solution.

To face this challenge we must develop a common language through which we can discuss the real risks involved with oil dependence and the ways in which peak oil will manifest locally. We need to understand the appropriate roles of both governments and markets and highlight the critical importance of 'demand-side' strategies as a complement to supply-side technologies. We need this common language as a foundation for making critical improvements to our cities and economies.

This new dialogue must reach beyond the traditional rhetoric of ethical environmentalism to speak to the real risks facing every home and business including turbulent prices, political upheaval, inflationary costs, blackouts, hoarding, and shortage.

The new dialogue must also acknowledge that peak oil is intrinsically linked to climate change – and that the transition away from conventional oil and gas will force a choice between relatively ‘expensive’ sources of clean renewable energy or increasingly dirty yet ‘cheap’ sources from heavy oils, tar sands, shales, and coal. It must also address our own actions in the face of the inevitable decline in the use of fossil fuels and the impacts this might have on society as a whole.



Objectives and Goals

- Become fluent in ‘futures thinking’ - understanding the interaction of depletion, supply, demand, technologies, markets, scalability, and politics.
- Prioritize our vulnerabilities and values -both social and economic.
- Identify key hurdles and catalysts - energy shocks, grassroots politics, economic incentives...
- Develop action items and a road map for moving forward- an action plan for the province, region, and cities..

Introduction

Cities worldwide exist in a time and place due to the energy sources available to them. While the sources have changed over time this principle has remained constant. Oil and its byproducts have been the almost 'perfect' fuel and have allowed the earth's population to increase far beyond what would have been supportable without it. This has led us to our current situation where, faced with the prospect of the decline of oil, we must make provision for the future of our species.

Traditionally societies evolved in a linear fashion, with knowledge passing to subsequent generations in a straightforward manner. Currently it might be said that we are living in the age of Alternative Futures, where innovation and technologies mean that each successive generation embraces and masters technologies and concepts unfamiliar to the preceding one. It might be said that what is required of the next generation is a paradigm shift- so great is the change in outlook and values that will be required. Only by means of a fundamental shift in values and priorities will we be able to make the societal transformations necessary to ensure a 'soft landing' in the face of the current crisis.

Setting the Scene

Recently there has been a tendency to present the coming crisis as a moral issue, a viewpoint taken by Al Gore in his recent movie 'An Uncomfortable Truth'. It can, however be argued that it is a wholly material issue and that to view it by any other means excuses us from the individual actions that we must take in contributing to a solution. There is also a perception, fuelled by many at the level of local and national government, that there is a choice to be made between the economy and the environment and that one must inevitably be sacrificed in the support of the other. In reality there are many worldwide examples of support for green technologies creating jobs and stimulating new markets, but it is important to realize that the concept of 'economy' as we understand it will not necessarily be useful or relevant in the future. This is difficult for many of us to accept since, to a large extent, the current economy has given us everything we have. We may need to face the entire overhaul of our market-based system and possibly consider strategies such as energy-backed currencies.

The history of mankind to date has been one of linear progression from hunter- gatherer to various modes of specialization, but there is a strong probability that the solutions to our current crisis may lie in ideas, concepts and actions that were more widely adopted in the past. The Post Carbon Institute has adopted the term Relocalization to describe the concept of provisioning our daily needs from within our locale. For this to be effective we will need to reduce our consumption while increasing production of daily necessities at a local level. While we like to discuss moving our Region incrementally towards sustainability, a realistic assessment of this goal leads to the inevitable (and politically unpopular) conclusion that the 21st Century must inevitably be one of contraction if the 22nd Century is to be one of true Sustainability. Society must adapt to focusing on the basic essentials of provisioning and protection and we must learn from the basic principles of the natural world around us, where the concept of waste is unknown and species thrive in a complex network of interdependence. *'Nature doesn't 'do' agriculture or economy.'*

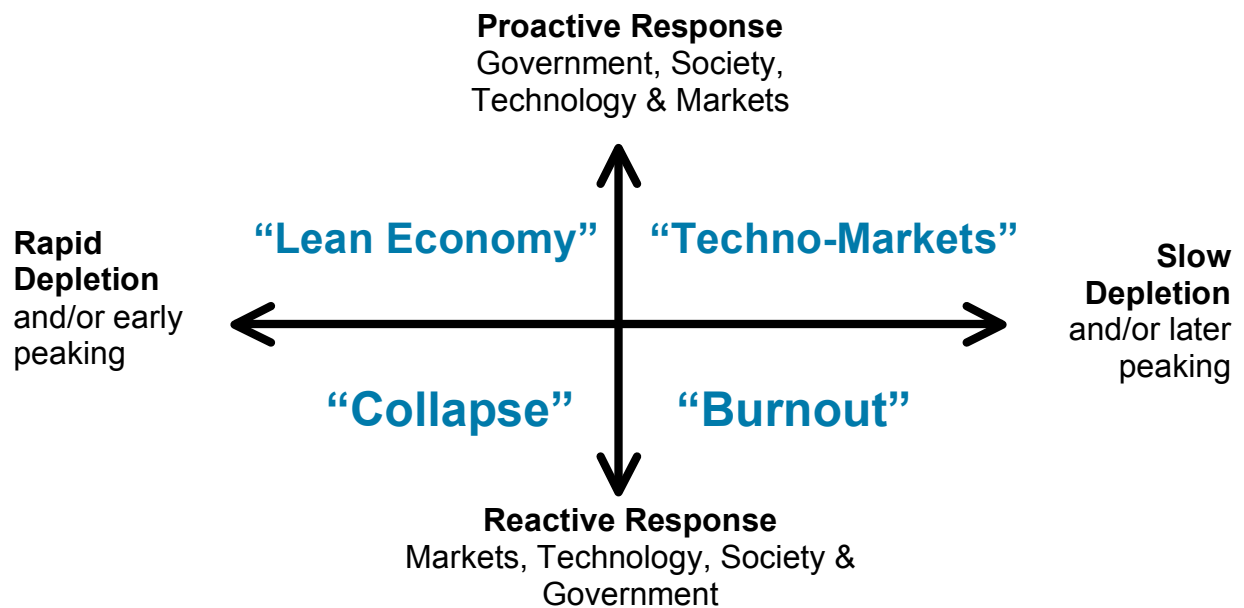
Methodologies

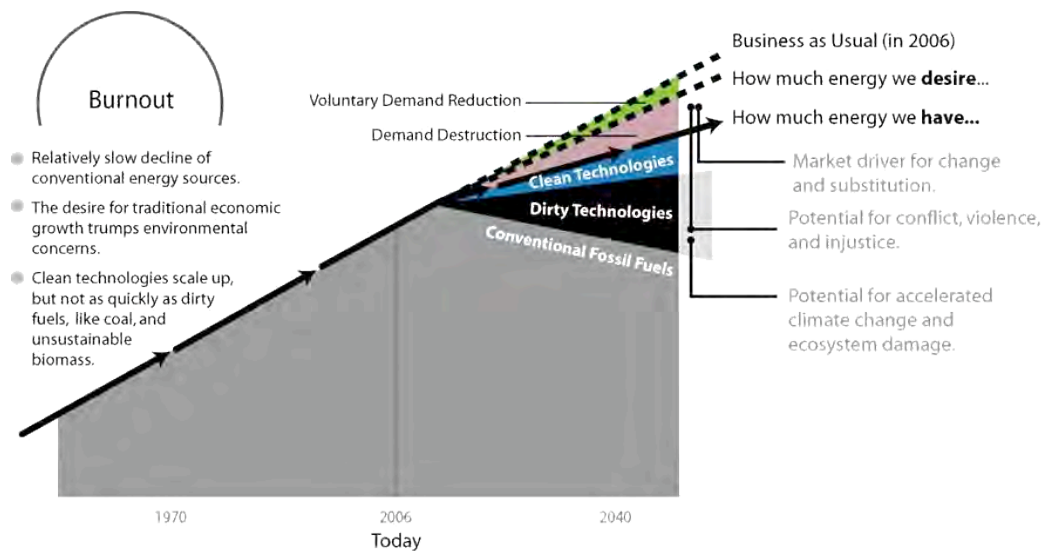
It was considered important to develop a vocabulary for discussing the options and scenarios that might present themselves. In this way we can ensure that the different groups can cover common themes and enable comparison between the various areas.

There are few who would deny that there will come a time when the world's demand for oil outstrips its capacity to supply it. Although some might argue that the recent rapid rise in the price of oil is a result of geopolitics, there is general consensus that world oil production will peak to an absolute maximum at some time and thereafter enter an irreversible decline. There are varying opinions on when and at what rate this will happen and, of course, no way of knowing the timing of the peak except by looking back at it. In looking at and discussing potential scenarios, two parameters were taken into account:

- The rate of peak, considering its timing (sooner or later) and/or the steepness of the decline thereafter
- Our response and actions in the face of the knowledge we have at this time about Oil Peak (proactive or reactive)

Potential permutations of these scenarios were considered and described as follows:

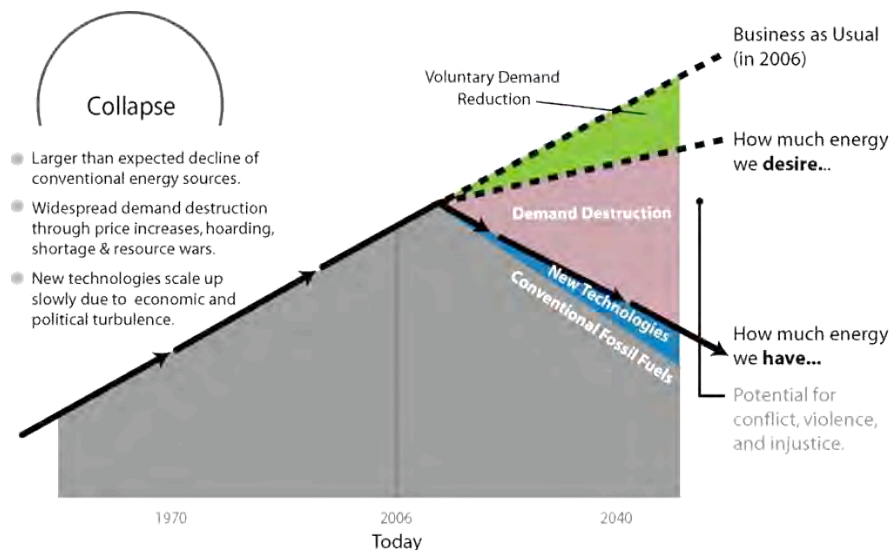




Example Scenario:

Non-conventional fossil fuels offset depletion masking any overall 'peak'.

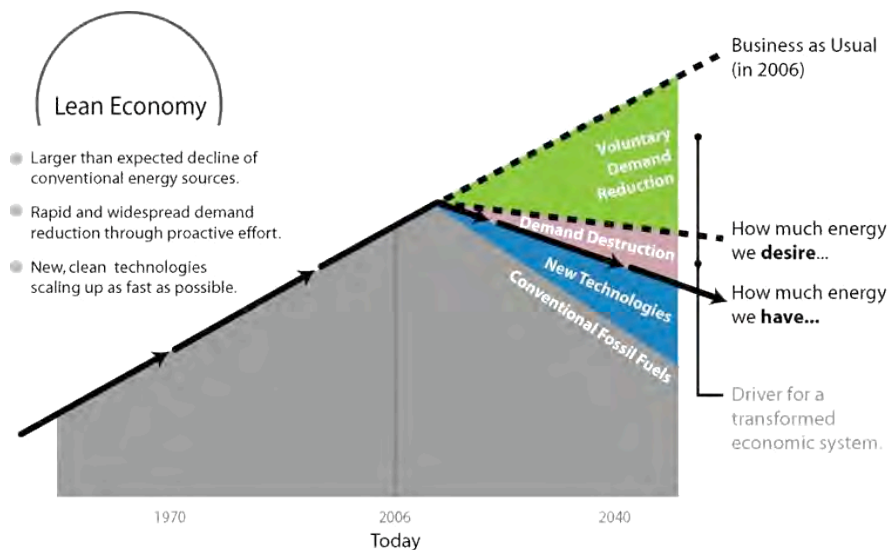
The price of oil hovers above \$70/bbl for several decades and drives a transition to coal, nuclear, and unsustainably sourced biomass.
CO2 emissions skyrocket, while habitats, farmland, and forests are decimated in a rush for wood and biomass.



Example Scenario:

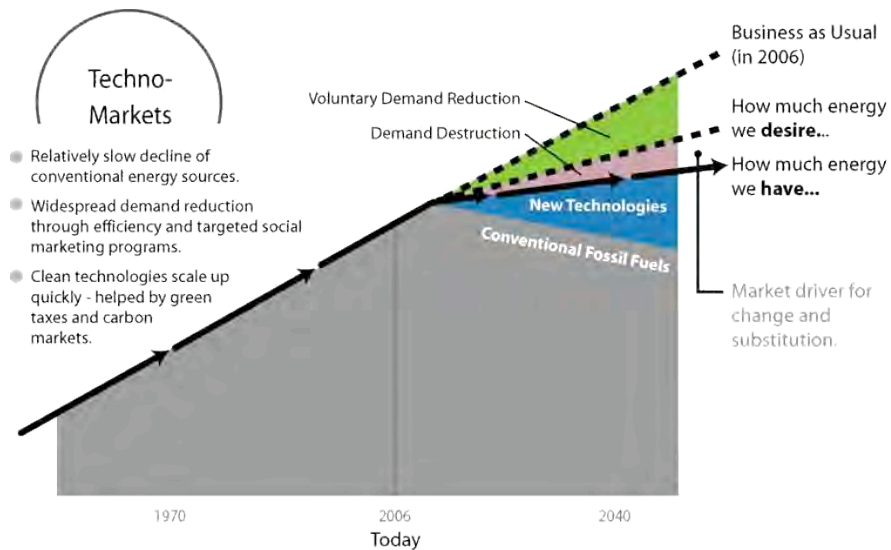
Conventional oil peaks before 2010 and depletes rapidly; faster than substitutes and new sources from tar sands, coal and oil shale can be scaled up. Declining global fuel supplies lead to negative growth. Investors lose faith in stock markets and currencies collapse. High prices and shortages cause 'demand destruction' but the base level of demand is too inelastic to contract voluntarily at the rate of depletion. Natural gas peaks and declines rapidly in many regions (including North America) as LNG growth fails to offset depletion. Nations battle for resources abroad and fight unrest at home. Unemployment soars, global travel and the globalized economy collapse. Health and food crises are rampant. Populations contract from lower birth rates and lower life expectancies. Governments revert to city-states while the former suburbs become lawless salvage yards.

SSP2 Peak Oil –Second Draft



Example Scenario:

Conventional oil/gas peaks around 2010 and depletes surprisingly fast. Governments enact their rapid-conservation plans drafted in '06. Political and religious groups come together to support international cooperation and help to avert armed conflict and the widespread use of dirty fuels. The global economy transitions (with the help of a few price and



Example Scenario:

Conventional oil peaks before 2010 but the depletion rate is buffered by non-conventional sources and rising prices. Governments reform tax laws around energy and the environment. Carbon sequestration allows for the clean use of fossil fuels. The 'Green' sector shows tremendous growth, while older industries decay. Developing third-world economies 'leap-frog' to sustainable economies.

There was further discussion around other factors which might influence the outcome of the scenarios, including the impact that the type of government in power eg: stalinist / liberal might have in each case.

Group Discussion Session

The discussion session took the form of seven separate groups, each of which was assigned a specific topic and area of the Lower Mainland as a framework for their discussion. The groups were set up as follows:

- Group 1: The Urbanites- Marpole/Richmond
- Group 2: The Suburban Beltway- Suburban Abbotsford
- Group 3: The Exurbia Necklace- Gibsons, Sunshine Coast
- Group 4: The Economic Scramble- Downtown
- Group 5: The Cultural Scramble- Tsawasswen/ Delta Port
- Group 6: The Environmental Scramble- UBC and Point Grey
- Group 7: Social Stability-Small Business Survival

Groups were given a map of their individual areas and asked to consider how each of the Energy Scenarios outlined might play out for the areas in question. It was suggested that the time frames of 2012 and 2016 be used as a frame of reference and for comparison (see Appendix A). While groups 1-3 were specifically location driven, groups 4-6 were asked to focus on Economic, Cultural and Environmental issues specifically. Individuals were free to be 'themselves' in the future but were also encouraged assume the role of a particular group or segment of society (for suggested roles see Appendix B) Each group was assigned to assign a note taker and to be prepared to report their discussions/findings back to the seminar group as a whole.

Group Reporting

Group 1 -Urban Scenario- Marpole

John Cross, Alyssa Myshok, Marta Farevaag, Shirley McGrew

Collapse Scenario

Governance would be much more localized, many more small governments becoming much more important, with the introduction of small neighborhood governments and the federal government still existing but hard to access for the average person. Government would be much more autocratic to make the much reduced energy supplies available for the absolutely necessary uses. There would be discussion of the use of nuclear or coal fuel sources.

The one item that governments would make sure was still functional was the information highway, the internet and computers, to avoid an absolute spiral into anarchy. Neighborhood and regional centres would be linked virtually and/or physically. There would still be schools, and national jobs but maybe fewer. Universities would still exist but maybe run from a distance with small regional centres because of very reduced public transportation and no private automobiles. Each neighborhood might own 5 cars that they would use when people had to go to things like the doctor or to transport large objects. The government would own the transit system. There would be no trips to Whistler and no second homes. Food would be sourced from the local or regional area- no imports.

Lanes in the city would come into increased use either as a small path for the empty garages to become granny suites, or the lanes to become small scale commercial with the disused garages becoming local business, i.e. Dressmakers, watch repairers, shoemakers, etc. Gas and oil would be rationed and used only for heating and cooking in houses.

It was assumed that most people would gravitate to the warmest areas and that seniors would move back in with their children if possible. If they had no children, they might make

arrangements with parentless families to barter childcare for less expensive living arrangements and support. There will be no TV. There would be a raise in the number of persons per house.

Unemployment will be inevitable for some in the auto industry, trucking and entertainment with no international movement of goods to speak of. Some jobs would be created to replace the lack of items that would have come in from the international market, such as shoes. There would be some regional commercial areas that would need a larger number of people to support their services. Technology would strictly be saved for the exchange of information, for government and to keep the schools and universities alive.

Lean Market Scenario

The existing method of government would still be the dominant kind of governance. The group agreed that the governance for the lean market scenario called for much more cooperation between the municipalities and regions to coordinate community delivery systems. The governments would take a higher lead role in food, fuel and transit distribution. Population growth in the region would still proceed at approximately 3 to 4 percent a year, with a doubling of the population in 20 years but there would be protectionism of existing land uses.

Cars would still exist and driving would still be allowed but the emphasis would be on better transit and more variety in types of transit. Some of the arterials would be used for fast buses and light transportation such as bicycles, scooters, etc. There would be an increased use of the river for transportation with water taxis, ferries, and floating markets on barges to bring produce to neighborhoods rather than people going to the market.

The food supply would become more localized. The government would make the large sports fields and disused ALR available for food production on a local and regional scale. Food from California would still be arriving, but maybe not as much or as much choice. Would there still be big box stores? They might have more local merchandise and might face the river as a two-sided merchant area to take advantage of the new water highway and a cheaper way to transport goods in bulk.

Buildings would be changing to take advantage of things like green roofs and solar heating. They might also have greenhouses and more insulation. There would be an increased interest in alternate energy systems, with the federal government putting up seed money in the form of grants.

Techno-Markets Scenario

The major difference in the technological scenario is the proliferation of new types of technology. There is also an emphasis on a much better fit of the kind of energy supply that a community has and the use to which it is put. For instance, houses would have a lot of retrofit to accommodate solar heating, increased insulation, solar water heating, geothermal and heat pumps would be common as well as passive solar. Rainwater runoff would be collected and reused. Air conditioners would be outlawed. There would much less waste heat, etc, from industry and commercial, they would be encouraged to situate uses next to them that could use excess heat or other products that could be easily reused by someone else. There would be more use of electricity.

Transportation would still exist but much more variety of types, electrical, hybrids, solar. Energy sources such as wind and water turbines, windmills, etc. would be encouraged and local needs and constrictions would be more adequately addressed. There would be an emphasis on using cars in a more socially adept way. Car pools, car groups hooked up by computer, bus passes. There would still be travel.

Governance would be front and centre in this scenario. The government would institute penalties and incentives to facilitate change and increase the speed of change.

Group 2: The Suburban Beltway- Suburban Abbotsford
Kim Sutherland and others

This group focused on the key issues of food production and transportation.

Lean Scenario

FOOD- This area has very good soils and potential for agricultural production. This may be one area where agriculture could support a semi-urban population. There is even a possibility that excess capacity might be available for export elsewhere. The first step would, however, be to reorient production to support local needs and demands and to be less intensively energy dependent. Different/more diverse crops will be required. Areas with prime agricultural soils must be protected from development. There may be a need to clawback ALR land and densify existing residential areas into 'villages' which might, in turn, lessen the major issue of maintaining support of servicing and infrastructure requirements.

TRANSPORTATION- where are the jobs that people are going to? They may be more localized, but could also be outside geographic area and require efficient mass transit. It is not clear where and what jobs will be so regional transportation needs are uncertain. A key strategy would be to loosen up zoning drastically to allow for multiple uses, subdivision of lots and to refocus on downtown core(s). This would help reduce energy consumption related to local trips. Encourage/mandate carpooling and make investments in non-fixed transportation systems (buses) that could be adjusted to meet changing demand patterns. There will, however, be a need to move food, goods etc. in and out of the area and it was agreed that rail might be the best option for this purpose.

Collapse Scenario

FOOD- there is a danger that food production might become unprofitable, and that the current system of high-energy inputs would cause abandonment of agriculture. This might result in inadequate production to meet even local needs, and could initiate backyard/urban agriculture.

As a result, food scarcity, and the associated security issues are likely.

There is also a prison nearby – what do we do with that? It was considered unlikely that inmates could become part of agricultural society. Subdivided lots would allow for large properties to be split up and house more families and produce more food, but this would not have an immediate impact- would take more time than we might have.

Group Questions

What about rail lines in the area – how would they be used?

Community building – what would large scale farmers do? Would farm based corporations still be in place or would smaller scale individual farms take over control? Different people taking on farming jobs (such as former office workers)?

Could this area transform itself into a "European type city"? Not likely was the conclusion

Prison – can we afford to run a prison? Can we not afford to run a prison? What jobs would they take on? Or would they revert to creating chaos in the community?

Group 3: The Exurbia Necklace- Gibsons, Sunshine Coast
Paul Krueger, Stephen Hall, Bonnie Fenton, Lisa Brideau

It was agreed that this area was a benign environment and will become increasingly desirable under all scenarios. It is a, however, a fairly isolated area, with no access roads and its current existence is predicated on diesel fuel, which powers the ferries and trucks the area depends on. As it is already left leaning community – hopefully it would move towards proactive as opposed to reactive response. It was incredibly self-sufficient in the past, so there is the potential for this to happen again.

Lean Scenario

The group speculated that since this area is geographically separated from mainland, it might be a good location to run a sustainable social experiment. The region will become much more localized and self-contained. There will be a tendency toward decentralization. There will be a corresponding decrease in tourism as ferries become increasingly expensive/ inaccessible and are reserved for the transportation of essential goods. The area will need to develop an independent economic base, with local processing and refining of materials and a local supply chain. This may result in a shift in the area's relationship with other towns further up the coast. The region might be divided into wards (Cuba example), with each taking responsibility for specific issues. The use of land, people producing their own food and local economy would allow people to buy more specialized goods (e.g., dimensional lumber from up coast)

Passive solar energy will increase greatly in importance, both at the level of individual homes and for the heating of greenhouses etc. and there will be more communal, but also more individual backyard gardening. Local transportation will use electric bikes etc.

There will be a general shift in focus towards communal decision-making in which all ages/sectors of society were taken care of for the good of all. A comparison to the positive aspects of a 'war time' scenario were made ('all pitching in', victory gardens etc.)

Techno-Markets Scenario

This would share many aspects in common with the lean scenario, but it was anticipated that advances in technology would allow supply chains to the Mainland to be largely maintained in both directions. The area's benign climate might result in it becoming an area for technology development in the field of agriculture, food and seed production, which might, in turn become a source of employment.

Collapse Scenario

This is the scenario under which the advantage of a benign local climate would be a big advantage in terms of heating requirements. The biggest issue facing this area would be one of food supply/ production- most food is currently brought in by truck on ferry. While a transition to an agrarian/ hunter-gatherer type scenario could be imagined, there was concern that this would represent an insurmountable learning curve to a generation who have no experience and few remembered skills relating to self sufficiency and that it would be impossible to maintain anything approaching the current quality of life enjoyed by residents of this area. There might be a return to more medieval lifestyle – living off the lands and in the hills in an unorganized, survivor-driven form of sustainability.

Burnout Scenario

There is a possibility that the area might develop into a hyper-suburbanized enclave of the very rich who would direct their efforts toward creating a clean/green community. This would inevitably result in an increase in the rich/ poor divide. It was imagined that as the numbers of people wishing to move to the area might result in the population influx being forcibly controlled in some way. An image developed of a gated community protected by private security.

Group 4: The Economic Scramble- Downtown

Adam Bullied, Bill Gibbens, Eileen Keenan, Chris Bouris

Burnout Scenario

This was considered to be the 'business as usual' scenario. Rail transportation and the ports would continue to expand and highway construction would continue. The area's resource base would allow its wealth to grow after many other regions of the world are experiencing collapse. The market would continue to dominate in residential construction and high-rises would expand east and south from the central city core as economic/environmental 'refugees' migrate to this region. Industrial land areas, such as False Creek Flats will come under increasing pressure from mixed use/residential development. Pollution will increasingly become a major issue.

Collapse Scenario

As a major urban centre, the group speculated that under this scenario our economic driver might become the recycling and dismantling of structures and objects that were once desirable but no longer serve a useful purpose. These scavenged/ recycled materials might become our trading currency with adjacent regions. Glass from high rises that can no longer be serviced will become greenhouses for food production and combustible building elements such as wood and carpeting might be burned for fuel, either by individuals or at a district co-generation facility. Initially large numbers of economic/ environmental refugees will arrive by rail and set up camp in False Creek Flats which may become a slum. There is a real danger that the will to survive will result in a large quantity of toxic pollutants and greenhouse gasses being released into the atmosphere. As rail transportation, even by rail, becomes unaffordable, transportation hubs will move to the river and waterfront. The extent to which this scenario plays out as discussed will depend on the amount of Government intervention and whether civil order can be maintained.

Techno-Markets Scenario

It was felt that under this scenario Vancouver could maintain and even increase its current residential densities, sustained by a hydrogen economy and innovative district heating and electricity systems powered by sustainable local sources of energy. The tops of high-rise buildings might be retrofitted to generate power and store water for the building's inhabitants. False Creek Flats might become a centre for eco technology and manufacturing related to the new green economy. Innovations in electric vehicles and hydrogen fuel cells will mean that personal transportation will still be feasible for many, but clean efficient public transportation will also be available. The group was hopeful that developments in technology would also create demand reduction as buildings, appliances and methods of production were engineered to be more energy efficient.

Lean Scenario

Under this scenario the group focused on the means by which remaining resources could be conserved by more efficient and less use. At a residential level, high rise elevators would be for emergency use only, meaning that residential above the 7/8 floor level would be turned over to solar collection, micro hydro and water storage. Groups of apartments would share communal laundry and kitchen facilities. Public transport will be fully electrified and widespread, as personal transportation will be by bicycle, horse, canoe, kayak or rowboat. Regionally, goods will be moved by wood powered steamships or sail barges, with electric rail transportation being used only for inland or regional routes where no alternative exists. False Creek Flats will remain a transportation interchange and distribution centre. Many of the parks and green waterfront areas in the City will be converted to the growing of crops, fruit and vegetables and all street trees, public plantings will produce edible fruit/ vegetables. The waterfront itself might be developed for aquaculture. Regional government will try to prevent an influx of people to the city by setting up a series of microhydro and electrification projects to generate rural employment. Current levels of soil contamination were seen as being a concern under this scenario.

Group 5: The Cultural Scramble- Tsawasswen/ Delta Port

The group determined that the following key elements currently define the community:

- Transportation for people – ferry
- transportation port for commodities
- suburban community
- land claim issues
- food production area

Lean Scenario

The land as a resource and its potential to produce food was identified and recognized. Under this scenario a partnership might evolve between landowners and the local First Nations creating a local integrated food production network and system to produce and export food. This partnership might be further developed into an Education Centre teaching both organic farming and traditional fishing and land use skills. Others might be drawn to the area to learn by example. It was felt that the region would shift from being a suburban community to a rural farming community that was the centre of a small region. This region might become energy independent through the use of wind turbines/wave energy and by biomass retrofits to housing and farm operations. The harnessing of tidal power might also be possible. There was discussion as to whether this area would become a major market garden for Vancouver. It was considered likely that without the additional production made possible through the use of current high-energy input farming methods that the area might be able to feed itself, but have little to spare.

There is a strong possibility that the region would become key place that others would want access to – how would this community interact with other communities? Would the increasing number of people be a benefit (labour) or a problem? Would it be possible to trade with other regions for hard goods? How do you *create* a local trading and farming community?

The underlying theme of the discussion was that this would become an integrated farming community with cooperation and a local based economy.

Techno-Markets Scenario

Under this scenario it was felt that there would not be so much pressure to localize. The region might have the opportunity become a major energy production centre. There might be the chance to benefit from large-scale wind energy development and also the potential for the construction of a more conventional energy plant that might utilize the sea/sea bed as an opportunity for carbon sequestration. The assumed slow depletion rate of fossil fuels would give time for these technologies to be incorporated and integrated with existing systems.

Solar and biomass power technologies might enable enough food for significant export to be produced this might be supplemented by large-scale fish farming/ permaculture development. Developments in sailing/marine propulsion would mean that the port would remain a key strategic asset.

Collapse Scenario

Food production will become the key driver under this scenario. There is a real possibility that this region's ability to produce food will become a source of conflict. The group envisaged an ownership struggle developing between landowners and First Nations and the conflict escalating to the point of violence and blockading- potentially eroding production and creating scarcity in the region. The blockading of the Port entrance led to a decline in the shipping of goods, with Police periodically would escorting a goods/food ship through the blockade to the port. The escalation tensions might isolate the area, disrupting electricity supply and creating a decline in availability of other fuels for cooking and heating. This could, in turn, cause the area's limited timber supply to be logged. People who do not own land themselves might resort to squatting on land and using local resources as best they can.

The stability of the regions dykes in the face of rising sea levels was also perceived to be a major issue. Could they be restructured to create a barrier to large storm surges or is there the ability to retain/maintain them and increase their height as required?

Group 6: The Environmental Scramble- UBC and Point Grey Eric Doherty, Daniel Rendall, Stephen Geiger

This group focused on the University itself and what might happen to it under the various scenarios.

Lean Scenario

The University might be required to respond rapidly to changing education demands. There might be an increase in courses relating to new skill sets required by the changing circumstances. New curricula might be more application based and evolve around:

- Urban Agriculture
- Green technologies
- Solar Energy/ hot water systems etc.
- Architecture/ building (and retrofitting existing buildings)
- Energy/ Engineering

It was also felt that the delivery methods for the various curricula would require change. There was little chance of people being able to devote four uninterrupted years to an undergraduate degree. Courses might be more intensive and of a shorter duration. There might be more emphasis on practical work or intensive workshops. The physical layout of the University might also change as a result of increased digital/ online delivery of programmes and a network of local campuses more easily accessed by students might also develop. Students would no longer have

the luxury of private transportation and there would be a increased demand for a high speed efficient bus service. The group felt that investment in an expensive fixed transportation link such as LRT might not be wise, bearing in mind the potential for change in the University itself. Some outcomes considered might result in a significant decline in students traveling daily to the University. Alternate and/or best uses for the housing on campus were considered. If trends towards short duration intensive courses develop, with students rapidly returning to their communities, the benefit of residence on campus increases. If the move is toward distance/ web based learning, this housing might be available for other uses. Some manufacturing might be undertaken in the current research areas.

Techno-Markets Scenario

Under this scenario, the group anticipated a less radical departure from the current role of the University. Many existing courses would still be offered but there would also be an inevitable shift toward new programmes addressing emerging technologies. There is a possibility that conventional 3 or 4-year degree courses might continue to be available. The emergence of new technologies might alter the physical appearance of the campus itself. It might evolve to incorporate experimental new systems of energy generation / use.

Transportation to and from the university might benefit from alternative fuel development but still might take the form of high-speed busses or trolleys.

Campus housing density might increase, with new, more energy efficient or prototype housing being built and existing stock being replaced or retrofitted.

Collapse Scenario

Three alternate future scenarios were imagined for UBC:

It might become an enclave for the privileged few where some semblance of the status quo might be maintained- a walled city where the wealthy hoard the last remaining resources

Alternatively it might become a hotbed of innovation and green thinking where innovative solutions to the Earth's problems are developed.

There is also the chance that it will decline due to lack of students and become a shell- an empty collection of buildings that might then be colonized by others.

Burnout Scenario

The University will continue in more or less its present form. There is a real possibility that increases in fees and costs will limit access to the Institution for many, those who have the money and the opportunity will still continue to attend. Technology assisted learning will expand as a means of bringing education to the broader population, but the role of the educator may change. The current move towards learning for the purposes of a career rather than for the sake of knowledge itself will continue. There may also be development toward a more European model, with education supported by Government with a financial or time/skill-based obligation to society after Graduation.

Group 7: Social Stability – Small Business Survival

Laura Bird, Harry Blazer, Mark Damm

The group focused its discussion around contributions by Government and Small Business. They attempted to look at each scenario through the eyes of three different constituents: Investors, Operators, and Consumers. None of the four scenarios as discussed by the group abandoned technology and all will require major building retrofit projects. New technologies will need to be focused on meeting basic human needs because those areas are going to be vulnerable (e.g. food provisioning)

There was also a feeling that it will be unwise to plan expensive, fixes to systems that cannot be adapted to an unprecedented future, eg transportation, considering we don't know how jobs will relocate.

Burnout Scenario

It was concluded that in some ways this scenario would be the most difficult to deal with because while there are increasingly fewer and fewer options available, mostly because of increasing scarcity / cost of energy and physical raw materials along with relatively little reduction in demand, there is the persistent illusion that there is more time to deal with things than there may actually be, since the connections between cause and effect are less obvious. The problem did not seem to be one of lack of talent or technology, but lack of will to recognize our problem and work together to solve it.

It was recognized that the dynamics of the burnout scenario present a unique challenge. Gradual deterioration allows us to underestimate the danger and allows for more effective rationalization and gradual adjustment. Only when we look back over longer periods of time do we realize how much ground has been lost in the interim. It was remarked that burnout is something that “happens to us, not something we chose” – further testimony to the debilitating and mesmerizing effect burnout has on us.

Businesses and consumers become preoccupied with “band-aiding” e.g. finding temporary solutions that allow them to get by for the time being with the expectation that things will “return to normal” in the near future. Investors find it increasingly challenging to find worthy and lower risk investments and thus focus increasingly on those businesses that are most effective, practical and creative in providing the necessities i.e. water, food, shelter, clothing, security, transportation. Few folks (including governments) are involved with illuminating and treating root causes vs. symptoms. There are opportunities in businesses that focus on repairing, remodeling, refurbishing and in figuring out ways of exploiting the solid waste stream. Overall, consumers have increasingly less money for discretionary items. Government tax revenues are shrinking.

While it was acknowledged that “relocalization” was inevitable, meaning that the means of production will be located closer to the local consumer, it was also agreed that this did not necessarily imply that local businesses would thrive. Currently, the most effective distributed relocalization models are being implemented, owned and operated by some of the largest corporations in the world who have extensive networks of global production and service facilities/capabilities scattered throughout the world, serving regional markets. So the question was raised, “is further centralization of power and money inevitable”? How can local businesses, that are controlled and owned locally, survive and thrive in such a marketplace. How can the decentralization team win?

Manufacturing will have to be local form necessity and will remain directly associated with the price of energy. Labour costs will go down because there will be a rise in unemployment. Carbon trading related policy will become more prevalent under the burnout scenario.

Techno-Markets Scenario

This was the scenario under which the group felt most comfortable and optimistic. All agreed that there is a lot of noise in the market economy because of subsidization, which distorts efficiency, the relationship between price and cost and therefore the veracity and usefulness of certain economic indicators (like GDP) to tell us how our economy is really doing. (there are other reasons besides subsidization that I will go into later). The word technology here was interpreted to mean “clean” tech.

Some critical areas (and consequently where the opportunities lay):

- a) Local agriculture and a shifting from a fossil fuel dependent process to organic practices and the use of alternative energy sources
- b) Energy from waste, both solid and biomass
- c) “Cradle to Cradle” approach to manufacturing
- d) Water optimization especially recycling
- e) Transportation

Themes:

- a) Efficiency is an underlying theme – getting more from less.
- b) Local, regional and national governmental agencies need to provide leadership and resources to help municipalities set up test sites for the prototyping of new integrated solutions and help foster the replication nationwide of successful solutions.
- c) Investors need to shift from a venture capital model to more of an annuity model and modify their expectations in terms of returns.
- d) Big and small businesses need to cooperate. The big players must use their resources to help seed and nurture innovative small companies as part of a local network (consortium) or place-based cluster of small businesses that share resources and maintain their identity and ownership. Small businesses need to get better at the “business of the business” e.g. backroom functions, marketing, distribution as well as having well developed succession plans.
- e) Governments need to promote policies that help foster this cluster model, including investment tax credits.
- f) The roll of benevolent debt (vs. confiscatory debt) needs to be explored. Financial institutions need to be flexible and creative. One example is to use tax credits (already secured that can be offset against future profits) to collateralize loans.
- g) Demand will increase for skilled trade workers to accommodate the boom in retrofitting, rehabilitating and maintaining.
- h) A whole new service industry will be required to manage a new demand model that is increasingly holistic, systems oriented and integrated.

Lean Scenario (Back to the Future)

Here business opportunities are seeded by a growing awareness and willingness to conserve and adjust lifestyles to be in accordance with our resource base.

Opportunities:

- a) Local food production.
- b) More efficient lighting and heating/cooling systems.
- c) Synchronization between government subsidies and demand reduction.
- d) Synchronization between pricing and demand reduction.
- e) Ways to make learning and knowledge sharing more efficient and pervasive including faster adoption of new beneficial technologies
- f) New investment vehicles e.g. *Genesis Exchange* (<https://www.gensx.com/>), which provides a public market for private companies.
- g) “Match making” between folks with products and services and those with needs (Genesis Exchange is a match making mechanism on the financial side)
- h) Micro utilities e.g. Turin, Italy has “micro-utilities” and “micro-technologies” to generate power for its residents rather than giant power plants.
- i) Operational contracts for municipalities with private vendors that provide integrated, synergistic and resource efficient solutions energy production, waste management, etc. (see www.ig.org and www.ballenetwork.org).
- j) It was stated that “we must understand India and China if we are to fully understand and optimize relocalization”

- k) Rewards will go to those who can perform vs. talk about (research) the problem
- l) Talent and technology are not constraints. But small companies rarely have the knowledge necessary to market and distribute successfully. This is where alliances with large companies, outside firms (a business opportunity) or a cluster (consortium) approach that leverages what talent there is over a broad base of local and local-networked businesses can be helpful. Lack of liquidity in the marketplace is not an issue either, though there are challenges in figuring out ways to attract available capital.

Collapse Scenario

Some in the group believe that the world is currently operating in the collapse scenario. General themes:

- a) Relocalization becomes critical as an antidote to fascism (the total merging of corporations and government) mass depopulation and dislocation. To the extent that local businesses can function, those that provide the essentials (food, clothing, water, shelter, security, communication, transportation) for the best price will probably have demand that outstrips supply.
- b) Problems of distribution will dominate under this scenario. Locale will be focus of meeting needs, but will require some of those limited resources to be devoted to security. Technology may become an asset that is hoarded.
- c) International free trade agreements such as NAFTA will collapse and need to be abandoned. Those with the United States become major concerns. Vancouver and other port cities will see their economic bases severely hurt Resource wars may go local with clean water becoming an increasing constraint. International instability is inevitable.
- d) Migration issues become more critical.

Conclusions

All Scenarios show a reduction in available energy both in absolute terms and also relative to the current energy-use trend line, since there are not sufficient alternatives that can fill the gap created by decreasing supplies of oil and natural gas soon enough (or perhaps ever at current rates of usage). There are differences between each scenario as to when the reduction occurs and how precipitous it is, based on how proactive vs. reactive we are in finding alternatives (including voluntary demand reduction). The ultimate and required solution may be described as “reduce/produce” – reduce consumption of energy and materials (powerdown) and produce vital goods and services locally (relocalization). The quicker we get there, the softer our landing will be.

Relocalization, as conceived by the Post Carbon Institute, means working to rebuild and retrofit communities based on:

- Local production of food, energy & other necessities
- Shortening supply chains
- Closing provisioning loops
- Relocalization of currency, governance and culture
- Integration and coordination on a wide scale
- Building a low-energy infrastructure
- A firm commitment to reducing and eventually eliminating community dependence on fossil fuels for energy.

As energy becomes scarcer, more governments and businesses will need to focus on the basics: how do folks get housed, clothed, fed, cared for, kept safe and transported. Particularly in industrialized nations, we will no longer be able to take abundance for granted. We will become increasingly preoccupied with satisfying the most basic needs.

Under the various scenarios, as the drop in energy availability becomes more precipitous and our behavior more reactive, more resources will need to become focused on the basics. We have less wiggle room and less time and resources and thus ability to rely on improvements in technology to bail us out (provide for a soft-landing).

One of the more interesting aspects of the overall discussion is the complete picture it provided of the region as a whole under the various different scenarios. The strengths and weaknesses of each area were exposed and their interdependence highlighted.

Two major conclusions could be drawn from the discussions. The first, which was treated as an established fact, is that the Burnout Scenario is largely representative of the status quo or ‘business as usual’ as described by many, and that it is fundamentally unsustainable in anything like its current form. Many groups made the link between Burnout and Collapse with the latter being seen as a logical and inevitable conclusion of stubborn adherence to the former. If any of the events discussed under the Collapse scenarios by the various groups have a chance of occurring there is no doubt that urgent action is required to change our current course. While the Collapse scenarios seemed apocalyptic, a clear line of logic and reasoning can be traced from here to there and this should surely be worthy of note to leaders in Government, business and society.

One of the most significant outcomes of the days discussion was a general acceptance of the group that, since we cannot predict the nature or speed of change in future events, a prudent approach should be in the direction of the ‘lean’ scenario or some variation thereof. This is in spite of an assumption held by many at the start of the day, (and much of the current ‘Green’ and

business sectors) that the Techno-Markets scenario is what the future holds and that a relatively smooth transition can be made to it. Many aspects of the discussion exposed the weakness of this thinking, not in how it would be to actually live in it (generally portrayed as positive), but in the huge steps we would have to take, both as a society and in terms of technology development in order to bring it about within the timeframe dictated by oil depletion. When analysed in depth, the scenario rapidly begins to take on Utopian overtones, and begins to look much less achievable in light of the current state of development of (and investment in) the technologies that seem necessary to bring it into being. A link can also be made between the Lean and Techno-Markets scenarios with the latter representing the situation we might hope to find in the 22nd Century if we take the steps dictated by the former in the 21st.

Feedback and Recommendations

While there was much positive feedback from attendees, there were several areas that might benefit from review.

Breadth of attendance- Sector Representation

There was a general disappointment at lack of attendance by many of the various stakeholders who need to be involved if any given solution is to be implemented - Councilors, senior administrative staff and other business leaders could have added depth and realism to the discussion. While invitations were issued to many in this category, it became apparent at an early stage that many could or would not attend. At this stage it was decided that this session would be used as a prototype for others and that the VCPC would use its role as an advisory body to council to offer it in some form to Councilors in due course. The event was also seen as a stepping stone to go to Councilors at metro level as there is a perception by many that local government structure is really not dealing with the missing issues of governance.

In addition, there were almost 20 no-shows on the day. There is no doubt that the timing of such an event in the middle of summer is problematic for many, but effort should be made to get input from these individuals/ groups on what form of event of this nature they would feel worthwhile and be comfortable attending, and to determine whether a specific change in format or timing would help. There is the very real possibility that many people at this level still grossly underestimate the importance of the issues and feel that we are being unnecessarily alarmist. Should this be the case, it is a much more serious issue that time and effort should be spent addressing. At any rate, the VCPC will ensure that this topic will be carried forward regionally and world wide through the other sponsors.

Format of Group Discussions

While many commented on how helpful and informative the group discussion format was, there were many, often contradictory opinions on alterations that would increase the benefit gained from the time spent. There was general feeling that the time was too short for the breadth of topic chosen and a suggestion that with the limited time available, the discussion should have been more structured. While others felt that the freedom of range in the discussion was a positive feature, in future it might be helpful to pre-assign group leaders and have them meet separately in advance of the event to discuss the aims and objectives of the discussion session. A list of questions or lead-in phrases could be developed as a tool for use if necessary, while still allowing discussion to veer in an unscripted direction if the topic is interesting and relevant.

It was suggested that a future event might break out groups along the major themes of food, security, transportation, shelter, jobs, water and health to enable more in-depth discussion on these topics. This is very much the format that was adopted in the original event. While this might be helpful, there would, however, need to be some means put in place to ensure that the impacts of choices in each of these area and corresponding outcomes for the others could be studied as interdependent systems.

Time frames and discussion material

Most groups found the combination of topic, geographic area, timeframes and roles too complex to address in their entirety in the time available. Most chose to focus on one or two and not address the others. It was felt that the body of material would be better addressed in a longer and more structured session. A popular comment was that we were trying to do too much.

It is interesting to note that feedback was received both to the effect that most of the groups

were not thinking about a 5 to 10 year horizon (ie the events imagined were too far off / unrealistic and that more pragmatism was required) and also that this was a very realistic attempt to address issues that might happen faster than most people think. This very much reflects a similar discussion that occurred between the various organizing groups and individuals when preparing the material. It should be remembered that the scenarios themselves are merely discussion tools. The individual years could be reassigned somewhat arbitrarily. There is, however a danger of complacency in assuming that the issues are a distant possibility in that this assumes we still have ample time to address them. Sometimes it is necessary to pursue a train of reasoning to its logical conclusion in order to understand the necessary steps to avert it and their urgency. Recent events such as the impact of Hurricane Katrina on New Orleans and the Gulf states and, more locally, Tofino's water crisis are real examples of both events that might be disturbingly common in the future, and lack of foresight in planning ahead for a crisis that could be foreseen, but was not judged to be imminent. This session was designed to provoke both advance action on the issues and to spur leadership in this direction.

Future Actions

The organizers hope that this event will be the first of many in various communities across the GVRD and, indeed, the Province. It has already been mentioned that the VCPC will move this into the realm of the Vancouver City Council. The Post Carbon Institute and New City institute are in the process of proposing a Peak Oil Resolution to the majors of the GVRD which, it is hoped, will raise awareness at a Municipal and Regional Level.

Our primary intention as organizers is, however, that each of the attendees at the session will make an individual effort to move the issue forward within their own sphere of influence and in their own peer group. It is our intention to develop a manual for those who would like to organize an event of this type in their own community, and to issue Certificates of Attendance at this event. To this end, any additional feedback or recommendations on content or format would be welcomed as a part of the ongoing development process.

It is hoped that successive events will raise awareness generally and that people as a group will be persuasive in forcing our leaders to act.

Appendix A-Time Frames

SSP2 Gaming Session Year 1. The Winter Olympics in Vancouver have ended.

2010 August.

Oil Price Index: \$150 per barrel, Gasoline \$4.00 per litre. Natural Gas: flame outs in mid winter as stocks are sucked dry in pipelines (winter, during Olympics, but affected US North east most). Stock Status: energy dependent companies trading at half of 2006 values. New energy startup companies trading at new highs. Big Oil trading at 10x 2006 levels as public realizes shortages for real.

Local Economy Picture: Service sector and public service layoffs at 30% of 2006 levels. One third of you in the group are now unemployed and looking to start a new local business, new food local production, retooling of old cars to electric, community self help is on the agenda; can you make them work? Represent all ages in your family group.

World Trade Shifts: China calls on US debt, China is in trouble for overspending on own Olympics. China unemployment rises to 20%, cheap stuff cannot be afforded and cost of shipping cuts cheap consumer goods trade in half.

Transportation Impacts: trucks moving to rail for long distance shipping. Warehouse districts now double overbuilt. Refrigeration trucks fleet cut by half. Food shipments from US, Mexico and South America cut in half as only wealthy can afford a tripling of fresh fruit prices.

Global Warming Indicators: Dessert spread from hot summers with not enough rain, forest shrink. Evaporation of northern lakes in Canadian Shield, drought on prairies, world wheat crop reduced by 1/3. US south west aquifer failing, plus new salinization of soils; south west food basket shifts from crops to cattle.

Metro Vancouver

Rainfall patterns change so water restrictions for sprinklers start in April. Gray water use for gardens argued but not adopted up to 2009. Port Mann twin bridge opens just as oil price cuts vehicle use in half. Transit systems overloaded by people still working and commuting. Suburban real estate drops by half, but holds in outskirt towncentres and on transit routes, city core property drops by 25% as tall thin buildings cannot be fully heated or cooled with gas shortages in winter and electric brown outs caused by California draws on system in summer.

BC

Lower rainfall means BC Hydro has to ration power at 66% of 2006 levels. Wind farms on North Vancouver Island join electrical grid. Loss of 30% of income taxes puts province into deficit and road construction and maintenance is reduced to 20% of 2006 base level. All highways are tolled. Cities invoke gas taxes to pay for transit under new Local Governance Act. Metro Vancouver seeks charter as city-state.

Canada

Government re-nationalizes Petro Canada. Tenders let for French or Candu nuclear reactors for Alberta Tar sands to triple the oil yield per energy expended. Loss of glacier waters from Rockies worsens prairie drought; Alberta seeks to tap water through new Rocky Mountain tunnel to bring water from Kootneys to Calgary.

North America

US government debates need to nationalize big 3 oil companies under National Security Act. Drop in Great Lakes level cuts ports activity. Severe summer storms and lowland flooding in SE States drives 10 million people back into the old Rust Belt of the north east. Severe heat in south west drives most of population into Pacific North West. China accepts exchange of US raw materials rights on government land as security/bond.

World

US, China and Russia are in 3 way stand off in the . Japan cuts all goods production by half. EU immigration to Canada soars, as fear of Gulf Stream conveyor collapse looks real. EU accepts Russian membership, sends 50,000 troops to help bolster defense of Siberian resources from Chinese incursions. India creates new trade zone and influence in East Africa for oil and raw materials. Saudi Arabia oil fields collapse. Mercator countries meet to discuss forming a South American parliament to deal with free trade, agriculture, oil and monetary union.

SSP2 Gaming Session Year 2. Interim history leading to 2016.

2012 August.

Oil Price Index: \$200 per barrel, Gasoline \$6.00 per litre. Natural Gas: flame outs reduced as large cities start city scale geothermal systems (pay back time 3 to 7 years. Airlines collapse to 15 lines worldwide. African and Middle Eastern nations switch to Euro.

Stock Status: major collapse of companies traded in stocks. Pension funds reduced to 40% of 2006 capitalization. Federal tax funds worldwide impacted. World Auto companies revert to national or local production and convert to hybrid vehicles. Vehicle conversion is new local industry worldwide.

Local Economy Picture: Service sector and public service layoffs now at 50% of 2006 levels. One half of you in the group are now unemployed but 1/4 have started a new local business, new food local production, community cooperatives are new corporate entity. Represent all ages in your family group and think of your neighbours, are you fighting every person for themselves or cooperating.

World Trade Shifts: China calls on full US debt, US defaults worldwide and US dollar is cut to half 2006 values. China & India unemployment rises to 50%, but offset by impact of famine. Oil use for green revolution collapses food production.

Transportation Impacts: loss of 90% of airplanes offset by new blimp/heavier than air airship services. Some long food importation restored but local food production is ramping up in warehouse conversions to greenhouses. Remainder of traded goods now moving to new sailing ships planned and built in 2008-2009 by far sighted investors.

Global Warming Indicators: Desert spread causing mass migrations to temperate zones. Pressure is now on borders, including US residents seeking immigration to land of more resources and cooler climate. Forest fires in BC are changing inland areas to grasslands.

Metro Vancouver

Rail transit opens on Fraser Line and Arbutus. Westcoast express moves to hourly service both ways. Death of suburbia happening in other cities is slower in Metro Vancouver due to in migration from extreme inland climate zones of rest of country, US and Central America. Overbuilding of city now brought into balance by major doubling up of population, multigenerational houses are back. In suburbs, neighbours buy up houses in joint tenancy and

make worst houses into barns, and farm the new common lots as one runway and converts the rest of the island to farm production.

University enrollment is cut to half and buildings converted to housing. Horse rearing is new hot industry to serve both farm and city as farming up-sizes and shipping industry downsizes and goes local.

BC

City State Status for Vancouver and Victoria follow with new County government in rural regions as services are downloaded to local levels with elected councils and transfer of half of provincial tax revenue to local counties.

Canada

Due to more social unrest, army and police recruitment is up. Canada calls for the revoking of the NAFTA after yet another trade talk fiasco. A new battalion is stationed at each pipeline crossing to the US, in part to protect the line but also to allow it to be shut off as trade talks falter and US dollar shifts down as other countries demand debt repayment.

North America

US government brings in conscription again but cannot fuel the Navy, Air Force or Army; US pulls out of the Stans but keeps a larger army in Iraq. Offshore exploration of continental shelf for hydrates causes major spill into the atmosphere, causing evacuation of Prince Rupert, Terrace, Juneau, Hyder, Kitimat.

World

Hurricane and typhoon increase on top of rising seas starts permanent pull out and abandonment of parts of Bangladesh, Florida, Holland, and the Lower Thames. Riots in European cities as third world workers are told to go back home and workers demand to stay and bring more of their families to Europe. Parts of Central Africa are declared no-go zones due to outbreak of unknown disease.

SSP2 Gaming Session Year 3. Interim history leading to 2016

2014 August.

Oil Price Index: \$300 per barrel, Gasoline \$10.00 per litre. Natural Gas: cross border trade is cut off (Canada had 250 years supply before NAFTA, now down to 25 years due to US exports. UN resolution on saving the Oil for our children's children, with international outlawing of air conditioning except for hospitals, inner cities to ban car usage, education made emergency recovery program so culture and civilization do not disappear under siege.

Stock Status: Stocks worldwide put in freeze status pending currency recovery. No public trading. Pension funds reduced to 10% of 2006 capitalization. Federal tax funds kept intact by oil tax, which is also helping conservation and conversion. World Auto production nearly non-existent as new light vehicle and train services on a crash upgrade program.

Local Economy Picture: Service sector and public service layoffs now at 80% of 2006 levels. 3/4 of you have lost your jobs but made new ones for yourself in the last 4 years. What has your family, group, interest group, profession or city done in a cooperative fashion to save not only you but also your city? -New food local production, community cooperatives as new corporate entity. Represent all ages in your family group. Expand and explain how others are affected and why you care. World Trade Shifts: World trade is back to basics; what you can only get from another place, and things that can only be supplied by you get preference. Transportation Impacts: Some world travel is restored but ships are by sail, trains have gone electric and air travel is 90% by

blimp. (16 hours Vancouver to Halifax, or Halifax to Paris)

Global Warming Indicators: Shear drop in oil consumption and slow ramp up of coal has allowed for more alternate sources; geothermal and electric for the most part. Some slight indication of good but loss of air pollution has increased solar gain world wide, less seeding of clouds by aerosols.

Metro Vancouver

Valley towns suffer loss of suburban back to farm as banks cannot handle the stock from foreclosures and houses cannot be heated. Long range commuting has been reduced to a third of 2006 levels due to not affording gas to commute, not enough money to pay to heat big houses, or pay taxes. Plus half of jobs, which existed, which did not add true value, disappeared. Loss of income means families regroup in central locations and sell off less desirable assets on a declining value. Vancouver is better off than most due to desirable location, climate. Metro Government brings in community geothermal project. Urban farming is largest urban industry. Schools are relocalized to local areas, high schools move into elementary schools, colleges take over high schools. Graduation shortened to grade 10. Food production is required course, with practical experience.

BC

Coquihalla highway is started to be reengineered to take out hills and converted to electric rail line. Trucks are to be piggy backed on line. Line to extend along Trans-Canada to Calgary. BC Ferries convert to sail and car passage to the island is by barge only.

Canada

As North West passage opens up for summer freight traffic, frigates, a sub and fighter base is permanently installed at each end of the Canadian Sea Lane. The US, Russia and China bring ships to each end but do not challenge " free passage".

North America

US government reduces 6th and 7th fleet to 1/3 of 2006 size. A threat to invade Venezuela for Oil is countered by unified South American parliament who threaten trade embargo against US for what little trade is left.

World

Mass migration from North Africa to Europe means martial law is declared. Aging European population cannot mount full defense everywhere and China annexes Siberia. Loss of oil based pharmaceutical industry allows several diseases to decimate hot climate zones in Monsoon season in India, Far East.

SSP2 Gaming Session Year 4.

2016 August.

Oil Price Index: \$400 per barrel, Gasoline \$20.00 per litre. The Beijing Olympics are held but the world is in a depression with skirmishes for oil going on while the games play out.

Stock Status: A new stock system based on local industry has sprung up and trading between local markets occurs on the Net and allows for worldwide trading without currency. The value of national assets of Canada and the unpayable foreign debt load of the US makes the Canadian dollar worth \$25 US, foreign purchases are just too expensive and this forces more local production out of necessity.

Local Economy Picture: Service sectors have rebuilt on local and most needed basis, and public services have been refocused on one county level of service including integrating local contact for

federal services. Hardly anyone has the same job, home, lifestyle or outlook that you had in 2006. What has your family, group, interest group, profession or city done in a cooperative fashion to save not only you but also your city? -New food local production, community cooperatives as new corporate entity. Represent all ages in your family group

World Trade Shifts: World trade is down to essentials. Big world cities cannot be fed, serviced or maintained, there is an outflow to mid sized cities. Armed forces are reduced to two extremes: manpower and WMD.

Transportation Impacts: As money has lost its place there is less tourism, but as a remedy, whole networks of villages offer to trade places with each other around the world as a means of cultural exchange and education.

Global Warming Indicators: All governments mandate reducing city and family footprints on the environment. Rather than restrict density, cities open up new ways of looking at it. Instead of wasting land and energy, they mandate conservation of land and energy. The impact is a re-greening of the city and new fingers of farm and forest are reintroduced into the urban landscape. It all starts to look a little greener. The question is, is it all too late? The indicators have a lag time, we do not know.

Metro Vancouver

Even Vancouver centre may be too big to be sustainable or self sufficient in the face of no affordable energy. The suburbs reconfiguration may not be as extreme as Calgary or Seattle, but more intensity in some parts and less in others will have to and will occur.

BC

Communication between the mountainous regions of the province may be hard to maintain, and the isolation of each area is likely to occur unless there is reason left to trade and help each other out.

Canada

An aging population, a soon to die of baby boom generation may signal an even greater immigration into the country even against a national policy that says no. The US problem of a porous southern border could be much worse in scale on Canada's southern border as the US climate moves from bake to broil.

North America

The sheer rearrangement of all we take for granted may cause the complete dysfunction of the largest nation states. Is this time to talk of a United Cities and Regions world parliament rather than a United Nations.

World

Impacts of no oil include less ability to carry the world population at this level; in most part due to loss of oil to artificially extract food from the earth.

Appendix B-Roles and Examples

Group 1: The Urbanites

As residents of the inner Metropolitan area, you have a generally good sustainable living arrangement but is susceptible due to:

1. huge investment in real estate which may be at risk as economic conditions change
2. you can bear a doubling up of population if needed to sustain yourself and the city but
3. you are most at risk of poor food supplies.
4. you are also mostly made up of people who are in the service and cultural industries, or in value added essentials first. How are you, your family and community reacting to the new contexts set out in each of the years set out for the scenario. Are you learning to work together or is it every family for itself?

These are an example of a social cross section; feel free to put your own context or your family or relatives to work if you can identify their situation as a good illustration of working within the gaming context.

Howe Street Bob & Mrs. Bob: Stockbroker, Mrs. Bob is teacher, big house in West Vancouver, 3 kids, plus places in Whistler and Maui. Yacht. Net worth \$2 million but heavily Extended with mortgages and loans which if land prices go down, could wipe out net worth In one week. Bob thinks no matter which way markets go, he gets a cut going any which Way.

Kitsilano Kate is working mom with 2 kids. Works in restaurant, is worried if people stop Eating out, what does she do next? Has close family in Kamloops, if things go bad, is she Part of an exodus from the city?

Lynn Valley Mike: 35-year-old mechanic lives with aged parents. Rents out basement suite to ex girlfriend hippie biker chick. Mike worries if gas prices spike and people stop driving, His shop will have to close down. Mike is starting to convert two old cars to battery drive. He tried gardening to cut food bills but found it rained too much in Lynn Valley. What is Mike going to do.

Sue from Richmond: Sue is part of a second generation of a large extended immigrant family. 20 people already share a 7-bedroom house and the backyard is a sustainable garden. Half the family work in agriculture in the summer and the other half work mostly in trucking and service industries. How does this multi dimensional household adapt or are they the farthest ahead?

Dunbar Dave & Milly: Dave is a semi retired UBC prof and Milly is a tennis club regular. Their main assets are tied up in their house, but there is fear real estate may not be as much a guarantee in the long run and Dave has heard the pension funds are not as secure as once thought. They have countersigned for three large mortgages for their grown, married children to a point that exceeds their own house value. Their kids had to move to Surrey because Dave and Millie fought any attempts to make housing options in their own neighbourhood. They now need to look at turning their house into a boarding house but the neighbours are too upset about it. (West End trend, 1930s.)

Burnaby Bill: a widower who has opened his house to half a dozen other seniors as a

group living arrangement. Bills retirement income comes from his former business on the prairies, selling farm machinery, but that is now at risk as gas prices have slowed sales and drought has cut back production. Bill has a farm in Vernon where they raise draft horses and he is wondering if he should really expand production.

Group 2: The Suburban Beltway

As residents of the commuting suburban Metropolitan area, you have a newly marginal not so sustainable living arrangement and are susceptible due to:

1. an investment in real estate which is most at risk as economic conditions change
2. you risk a loss of population but need to look to see if local sustainable villages are a possible new reality;
3. you are most at risk of poor food supplies but are close to providing more of your own.
4. if you are in the service and cultural industries, or in incomes shrink and people reassign income to essentials first. Can you become a new basic service provider or at least make yourself self-sufficient and maintain your home, and your community.

How are you, your family and community reacting to the new contexts set out in each of the years set out for the scenario. Are you learning to work together or is it every family for itself?

These are an example of a social cross section; feel free to put your own context or your family or relatives to work if you can identify their situation as a good illustration of working within the gaming context.

Gill and Susan from Surrey: typical small lot owners in a neighbourhood 2 miles from any services. They have to drive to everything and even by 2008 could not afford mortgage, home energy costs and 3 cars- one for the teenagers to use. Both have jobs requiring full time use of cars, and the eldest used to deliver pizza until the gas prices shot up. They cannot afford to stay in the suburbs if they lose even one job, they cannot afford the city and they have no close relatives to double up with. The location is so car dependent they cannot rent out the basement suite.

Bill and Joy from Maple Ridge: they live on a horse hobby farm of 2 acres and rent out space for truckers next door to park their rigs. Bill commutes to the city on West Coast Express four days a week but his banking job is to be eliminated. Joy works in local government but downsizing due to tax base erosion and tax payer revolt means she has to look to other means of support. They have a new greenhouse but are on a learning curve trying to raise salad crops. Three grown kids have moved back home with 4 grand kids in tow.

Oscar and Lucinda from Abbotsford: Oscar works for airline servicing but the airlines are on downsizing as fuel prices soar. Lucinda works at the customs in Sumas where trade traffic has shrunk but illegal immigration has soared. As Abbotsford has very poor transit they have tried car pooling. Both their parents are in seniors housing but the government has run out of funding so the homes are to close.

George and Betty Lou from Chilliwack: they live in an RV as they lost their home in the last Fraser River Spring flood (global warming?) Their floodplain farm is in full production but they have trouble keeping the crops secure from suburban crop thieves. Fertilizers based on oil products have soared in price but they have reintroduced sharecropping to locals.

Howe Sound Hugh: Hugh and his friends are on a cabin on Gambier, dependent on boat

commuting but all have lost their city jobs. They have 6 people on 10 acres can they get by?

Whistler Wally and friends. Formerly roving citizens pursuing a jet set lifestyle, their Inheritances and stocks have dwindled with stock market crash. Sharing a time share condo and with no real skills, what happens to the formerly well off?

Group 3: The Exurbia Necklace

As residents outside of the Metropolitan urban area, you might have options to become locally sustainable, but can you do it without utilizing major oil?

Is your remote location sustainable due to water, soils, or other raw material:

1. your investment in real estate may be at risk as economic conditions change or
2. you can bear a major local area build up of population if needed to sustain yourself and create a sustainable village based on a local industry supplying the new economy
3. you are most at risk of poor food supplies. but can you now raise food locally
4. you are also mostly made up of people who are in the primary industries in 'value added' jobs or essential to others' survival. How are you, your family and community reacting to the new contexts set out in each of the years set out for the scenario. Are you learning to work together or is it every family for itself?

These are an example of a social cross section; feel free to put your own context or your family or relatives to work if you can identify their situation as a good illustration of working within the gaming context.

Gulf Islands New Generation back-to-the-landers: Like traditional island life the world over, island villages need to become self sufficient. If you become an island dweller hoping to become self sufficient, and have managed to secure an acre of land for your family, put yourself in this setting and in the future history context of the game.

Squamish First Nations: First Nations were self-sufficient before, how can this be accomplished again as resources available to all around them are diminished. If the Federal Government starts renegeing on funding for projects across the board, can existing villages become really self-sustaining again, in the context of the gaming future history set out?

Larry and the Loggers from Hope: Larry has a family business which depends on gas and oil for trucks. The lumber industry collapse is set off by no housing starts in the US or Canada. Fire from tree disease and global warming is reducing forests and leaving grasslands. How does a family of 3 households with these kinds of skills and assets make a switch within the history context set in the game.

Nanaimo retirees: Sue and Sam from Sausalito. As part of the new wave of Americans looking for cooler climate, less competition for resources, this couple along with 3 kids and rotating groups of in laws have moved to the middle town which they think is a good target for a sustainable town; not too small, not too big. They have tried to set up a group village for sustainability but find the bylaws just work against them. They want to set up an independent village economy within the town framework. Their large suburban lot is a small farm in practice. The money they thought they could emigrate with has dwindled due to international monetary crisis so they now must plan for real food and revenue production.

Bellingham In laws Storm and Peace: folks forget the metro area reaches across the border, but with increased social and economic unrest the border becomes harder to cross. Cross border commutes disappear along with those daily jobs. As each has citizenship in one

country, they must decide which way to go as conditions seesaw both sides of the border. Storm is a lawyer, Peace is a dentist. Both find work has fallen off, as both are now luxuries. Their kids have stopped going to university, as it looks doubtful a job awaits anyone. This is a potentially footloose group of citizens who could be caught between countries. What do you do?

Group 4- The Economic Scramble

There are many categories of business, in scale, types of product and service. All will respond in various degrees to changing conditions. The larger entities are most dependent on cheap oil, distribution systems and operate on small margins of profit per item but large volumes, making them most exposed. Smaller faster responding companies likely have an advantage. Local companies already are 'relocalized'. In your role below, as you respond to the scenario, changing conditions, relay your findings to the other tables as this may affect their decisions in turn.

If you are a large scale entity; do you continue, disappear, rethink your business or make alliances with another industry. How does this affect you, your family and what do you see as your community of like interest. Suppose this table combination is a Chamber of Commerce meeting.

Big Box Foods: This industrial group is used to dictating all terms of their operation. With soaring fuel costs, transportation is unaffordable for produce or long hauls. Overall production costs increase for all goods but luxury items disappear first. The cost of refrigeration means meat production relocates. Overall volume of goods in stock or on hand drops. The need for so large or so many stores means a new surplus of space. How does this operation stay viable.

Really Big Pension Funds Inc: Oil price shock causes a severe drop in commuting, a loss of city core jobs, service jobs, and means the viability of large office towers and shopping centres falls dramatically. As this is a major investment area for pension funds, the liquidity of pensions is in question. Pension holders form sub groups to reclaim assets of the funds, causing a break up of funds and assets. What other scenarios would you put into play as a director or investor in this area, given the scenario of the gaming session.

Big Bank Number Two: Large scale loss of jobs and income means default on increasing number of mortgages. Government underwriting of bank stocks becomes questionable. Shareholders demand direct access to liquidated assets as they see them going for ten cents on the dollar. As a director of the big bank what actions can you take in the scenario of the game. Be aware of US banks exposure given a US tendency to re-mortgage during inflation, and now we have deflation.

Small business group rep; In-town chamber of commerce: Service industry suffers shut down, loss of business district vitality. Scale down of operations also creates former employees now entering field as competition. Family businesses come back as relocation kicks in.

Truckers Self-Employment: gas price increases plus loss of demand with total downturn of economy; what is the soft landing scenario for this now over built sector.

Civic Workers Union: with tax base erosion local governments will offer job sharing or early retirement, effectively cutting wages and staff in half. Where else is this sector to work.

Professions; essential vs. cultural services. Doctors and nurses in more demand but loss of tax base will cut jobs. How does your chosen profession respond to the gaming scenario as set out?

Group 5- The Cultural Scramble

When economic crisis hits, the whole population tends to go back to basics. The most vulnerable institutions are in the cultural fields. As energy prices soar and industries collapse or reform, as tax bases shrink, and incomes shrivel or disappear, how does the last in, first out category of activity maintain what has built up? The key is to make sure the vulnerable become part of a viable community and the community makes sure it keeps those pieces alive. In the case of universities, they have started to become sustainable by becoming communities themselves. In the case of these or others you wish to put forward and defend, how do you see cultural activity remaining viable under the scenarios and temporal contexts you are in for this gaming session.

Suburban Government -School Board: Tax base erosion and loss of senior government funding will put school boards in same situation as civic governments. Like the 1930 depression, there is little choice but to offer half a job or half a salary. The impact on the children is also likely half a schooling, split class uses, half home schooling, local neighbourhood make up classes. As a board member of the responsible body, what decisions are you making relative to the scenarios set out in the gaming sessions.

University Board of Governors: Government funding cuts plus a drop in enrollment due to lack of personal funds means the university has to restructure. Given the scenarios/future history context you are acting within, how can you keep your institution alive, how can you partner with others to a common survival.

Manager of Civic Theaters: Is this a return to the starving artists predicament? As a manager of civic assets and a patron of the arts yourself, how are you going to keep culture alive in a city suffering a redress of it under other circumstances for arts groups in particular to do a strategic planning exercise totally for their own sector in preparation for this scenario coming into play.

Federal Minister for Culture and the Arts: play an interventionist proactive role to see if there is something that can be done in the face of what could be a civil society melt down.

Book Publishers,
TV Studio Managers

Group 6- The Environmental Scramble

Increasing environmental standards in boom times is difficult but tax resources are available. When energy price increases cause economic instability, how can the environment be maintained. Even services we now take for granted; from street sweeping and garbage pickup to policing of logging practices will be under stress, some services will disappear. As in the collapse of the Soviet Union, or after civil wars, the economic upheaval may trigger environmental degradation. How can you and your community work together, or can you, to make sure this does not happen. Set yourself in the time frames of the game and discuss how realistic this is given all the other demands placed on you, your family and community.

Feds example: Fisheries and Oceans: Social collapse only increases environmental pressures. Who is going to pay for more policing when the money is short. Can a scale of local community evolve fast enough to have local responsibility in so many areas we now depend on Big Brother to watch over us. Can the senior government maintain enough presence to continue to show the

flag both internationally but also maintain environmental protection locally. If you are the minister, with dwindling resources, how are you working within the gaming scenario. Canada has managed to pay back a larger portion of federal debt. In other places the call on foreign debt may mean cutting of federal civil services (like US or China as big debt gets called in).

Foundation needing money for causes: Green Alert: Collecting money in good times is hard enough, how do you as a not for profit institution keep your agenda alive. If you think your involvement is even more critical when resources are dwindling and environmental pressures increase, how are you and your members responding to the gaming scenario crisis. Are you evolving into a more political group for instance. Are you helping local areas evolve into more sustainable communities. Who is paying the bill.

City water and sewers and waste collection; Manager: Falling tax base and tax payer revolt means you now have to prioritize services; if some are to be cut, which ones. Is this the time to make some services more sustainable by different design or other ways of working. Can you make increased unemployment work to your benefit? How lean and mean can you get working in the gaming scenario set for you.

Translink Board: Increased energy costs have little impact on Skytrain but fuel for buses is another matter. While jobs disappear, huge increases for transit demand overwhelm the system. How can you justify huge new increases for hardware when so many are suffering? (Clue think of transit at the highway system). The changes you need to make are ones that should have been made a hundred years ago. You are part of the solution, how can you make things work in the crisis mode we find ourselves in?

Highways Ministry: Well you now have lots of highways and a flagging demand. No money for repairs. How do you fit into the scenario playing out around you, can you accelerate the needed change of pattern of community.

Group 7- Social Stability

Energy price escalation will reach a point of rapid unrelenting increases. As resources become more scarce and all industries retool or downsize, tax bases shrink. How are public services, from security to health and education to be maintained. Aside from your own individual, family and community level problems, in these roles you are responsible for maintaining social services or continued good government. Some of these roles are adversarial in nature as this is a competition for limited resources in the public sector with a reduced tax base. Take note that local level tables are trying to resolve day to day lifestyle adjustments while national governments and corporations are moving in other directions. As the middle level of governments or as professions dedicated to the public health and welfare, try to determine the best path or soft landing in the future history contexts provided.

Teachers Union rep: You have two conflicting goals; teach the children, and protect your members who are the teachers. Society has run out of money yet you have to eat too. Everyone is being asked to make a sacrifice and of course those that enjoy their work don't need to be paid as much, correct? Attrition due to retirement and a shortfall in new grads starts to whittle the system down but shifts for school use, larger class sizes, and more home schooling are demanded, how is your profession able to offer solutions within this scenario of economic adjustment.

Seniors Care: The loss of tax revenue puts more pressure on health care to downsize just when more pressure is building from economic upheaval, more homelessness, more communicable disease due to system erosion, and social upheaval. More folks at home and more people per house may aid in group or family care. But what is to be done for the seniors that need the most

care. As the minister responsible for delivery of these programs, how are you adapting to the gaming scenario set up.

Police and Fire Unions rep: Increased social unrest and a falling tax base puts more pressure on emergency services. The government feels this is the one last thing that cannot be eroded or there is chaos, but you are being asked to do more for less too. Are you part of the new elite, have we entered a period of brute force and control as the last safeguard. As the representative of the workers in this case, and as neighbors to the rest of society going through big changes, how are you adapting, what is your position.

Federal Government: Peace, order and good government: As Justice Minister, involve yourself in other table discussions and with this table interests. How can you juggle the competing interests and with declining resources at hand.

Provincial Government: cities and regional imbalances: Premier of Province/Governor of State; given the diverse regional differences, monitor all actions and act to intercede as needed. Declamatory role.

Metro Government: a new voice, finding a role? Advocacy role; academic or political or activists role; monitor city as region, eco basin entity and see if there may be a positive role for redesign of governance models in the gaming scenario set out.

Appendix C- Area Maps

SSP2

Urban Laboratory Settings August 2006

Atypical Metro Vancouver Sites
for Peak Oil Impact Planning

Vancouver City Planning Commission/SSP Committee
New City Institute
Post Carbon Institute

Prepared for SSP2



Balfour + Associates • Strategic Planning
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LANDMARKS & OPPORTUNITIES

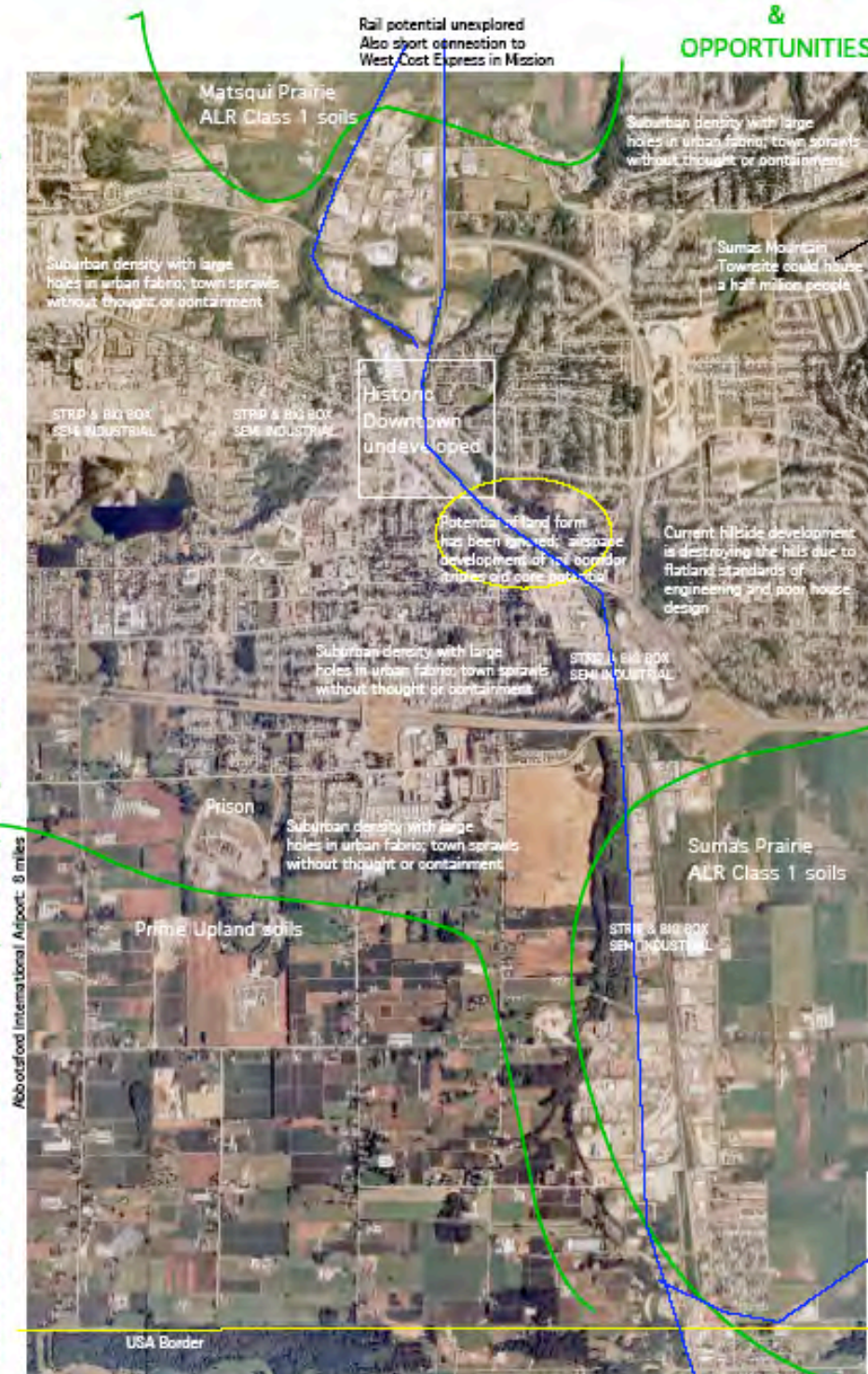
Where is the hill town development

Vancouver City Centre • North Vancouver City Centre • False Creek Flats Focus
New Age of Rail, Integrating Industry, Traditional forms of city and land uses?



SSP2 2006 VCP: SSP Committee • New City Institute • Post Carbon Institute

Abbotsford Historic Centre • Rampant StripCity • Sumas Mountain Townsite • Prime Farm Country



LANDMARKS & OPPORTUNITIES



Urban Village
100 up -
200 ppa
2000 people/10 ac
120,000 p/sq.m.

Old suburbs
5 up
15 ppa
150 people/10 ac
9000 people/sq.m.



1/2 MILE / 804 m

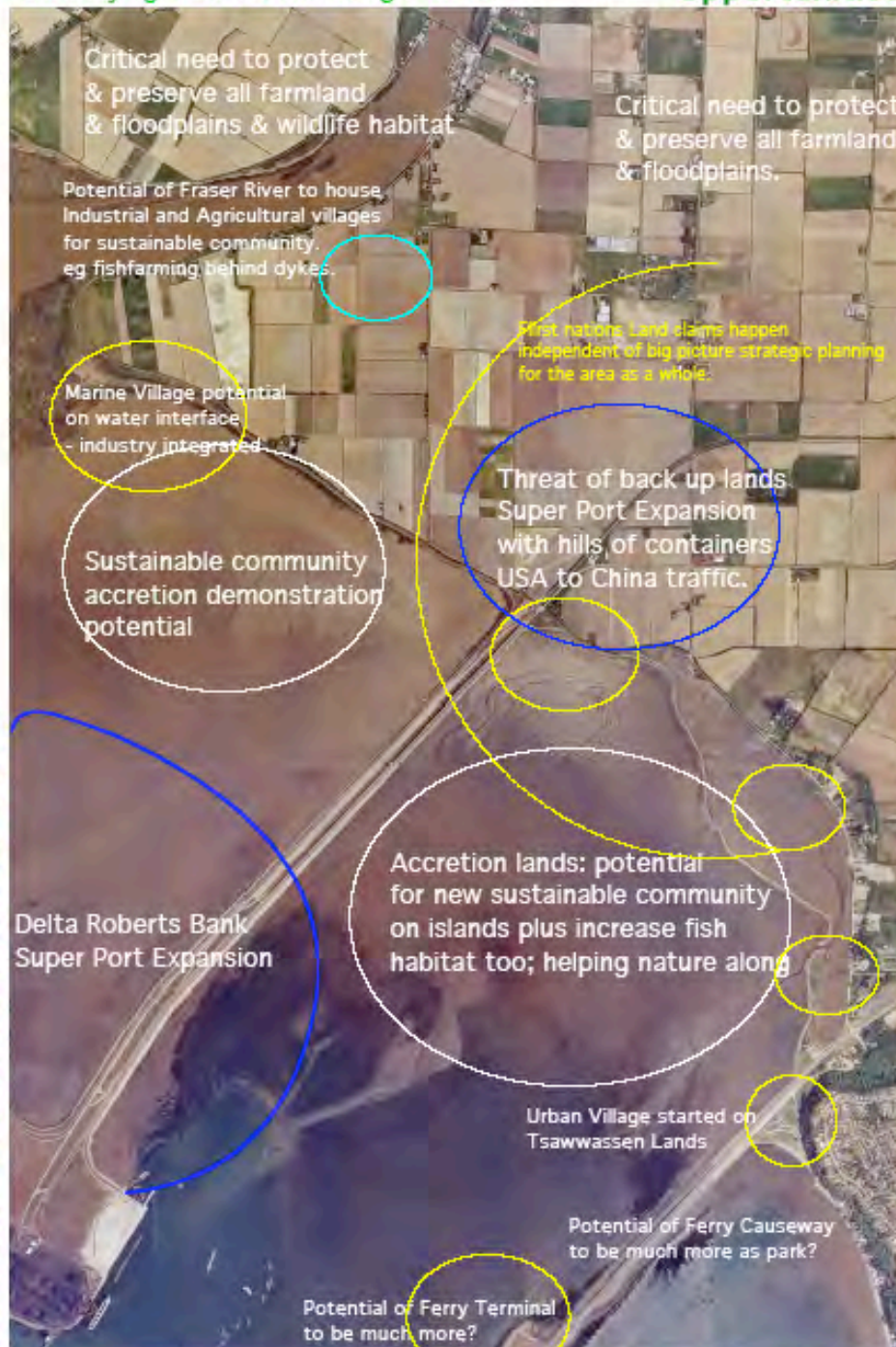
PEAK OIL IMPACT ON
CITY & CULTURE
WORKSHOP 2006

SSP2 2006 VCP/C: SSP Committee • New City Institute • Post Carbon Institute

Land & Water Interface • First Nations Tsawwassen • Waterfront Villages •
Delta Port • Fraser Farmlands Focus

Delta -saving farmlands & habitat
Diversifying to traditional village forms?

Landmarks
&
Opportunities



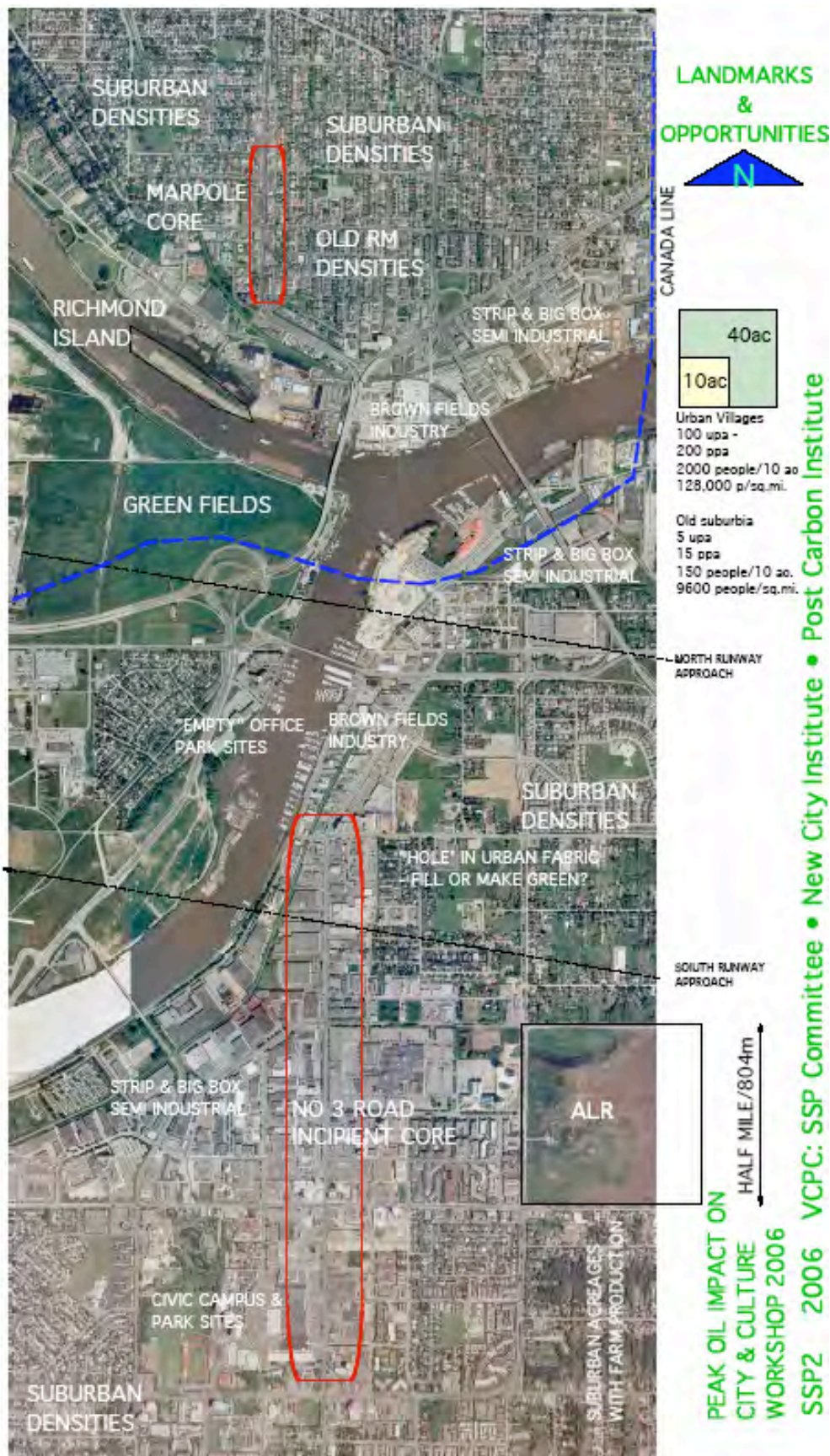
half mile



160 acres

PEAK OIL IMPACT ON
CITY & CULTURE
WORKSHOP 2006

Richmond City Centre • Marpole Urban Village • YVR • Fraser River Focus



UBC as a Metro Town Centre • YVR • Fraser River Focus

UBC: A Metro Centre cul de sac or Crossroads?

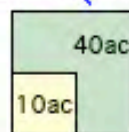


LANDMARKS & OPPORTUNITIES



HALF MILE/804m

PEAK OIL IMPACT ON
CITY & CULTURE
WORKSHOP 2006



Urban Villages
100 upa -
200 ppa
2000 people/10 ao
128,000 p/sq.mi.

Old suburbia
5 upa
15 ppa
150 people/10 ao.
9600 people/sq.mi.

SSP2 2006 VCPC: SSP Committee • New City Institute • Post Carbon Institute