



# A Tool Kit for Community Energy Planning In British Columbia

## **An Introduction**

Volume 1

## **Overview**

The Community Energy Association (CEA) is a charitable non-profit organization taking action on energy sustainability and climate change by assisting communities to develop energy efficiency and green energy initiatives.

The BC Energy Aware Committee, CEA's predecessor, first produced a *Toolkit For Community Energy Planning in BC* in 1997. It has subsequently been updated and expanded to reflect the issues and experiences of community energy planning throughout BC. The Toolkit is available as an internet resource, downloadable pdf, or in a printed version, available from the Community Energy Association.

The Toolkit is written for local elected officials, municipal and regional planners and engineers, real estate developers, First Nations, provincial and federal governments, and anyone interested in community sustainability and energy opportunities. It will also be a valuable resource for residents and community associations, gas and electric utilities, independent power producers, planning and development consultants, architects and homebuilders. In addition, the Toolkit offers ideas for policy changes to move conservation to a higher priority, reduce consumption, save or protect greenspace and reduce greenhouse gases.

## **An Introduction to CEP**

Today's communities, small and large, face many challenges — paying for new infrastructure and services, revitalizing local economies, managing residential growth, and preserving watershed quality and valued greenspace. Larger communities are also struggling to control air pollution, mitigate traffic congestion and maintain neighbourhood character in the face of rapid growth. And as climate change pressures begin to mount, many are looking for ways of "doing their bit" to reduce their emissions of greenhouse gases. As communities work toward long-term liveability and sustainability goals within ever-shrinking budgets, where does energy fit?

Surprisingly, the way we use and deliver energy affects all of these community goals. And, the way we design communities profoundly affects energy goals. Good energy planning, integrated into community planning processes, can help communities address many of today's challenges.

Times are changing. And the energy options available to communities are changing. Most of us don't know what the financial, environmental and social costs of our energy supply and use are.

This publication introduces concepts and tools that will help communities understand energy impacts and use energy planning as a lever in meeting broader livability, climate protection and sustainability goals.

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## **What is Community Energy Planning?**

Community energy planning involves community and energy strategies that can be applied at the local level by planners, engineers, developers, and the public in cooperation with utilities. It encompasses:

### **Land Use Planning and Transportation**

**Goal:** To develop compact and "complete" urban land use patterns, to increase the availability and convenience of alternatives to the single occupant vehicle through land use density and mix, and to make communities more liveable and accessible to all.

**Strategies are related to:**

- contiguous development patterns;
- parking plans and siting;
- street design and traffic rules;
- trip reduction measures;
- stakeholder participation;

### **Site Planning and Building Design**

**Goal:** To increase the use of design philosophies and features that improve energy performance and enhance quality of life.

**Strategies are related to:**

- building and appliance efficiency
- solar orientation
- landscaping
- wind shielding and shading
- pedestrian facilities and orientation
- transit facilities and orientation

### **Infrastructure Efficiency**

**Goals:** To increase the use of energy-efficient technologies or service options in infrastructure, and to increase the production of energy from regional or municipal facilities.

**Strategies are related to:**

- water supply and use

- wastewater collection and storm drainage
- recycling facilities
- heat and power recovery
- joint infrastructure planning and delivery

## **Alternative Energy Supply**

**Goals:** To increase the use of local supply options, high efficiency supply options, and "cleaner" supply options.

**Strategies are related to:**

- "district" heating and cooling
- waste heat utilization
- heat pumps
- co-generation of heat and power
- wood-waste systems
- solar technologies
- alternative fuels

What people really want is not kilowatt hours or gigajoules of energy, but rather the services these things provide – things like refrigeration, hot showers, and warm rooms. Community energy planning focuses on identifying the least-cost options for providing services. This may include more efficient houses or appliances as an alternative to simply providing more energy. Local government has an important role to play in the least-cost delivery of energy services, because, of all levels of government, local government has the most direct influence on the builders and users of infrastructure, buildings, equipment and transportation.

An energy-aware community works with energy utilities and private energy companies to promote and finance energy-efficiency investments. Homeowners, businesses and developers all have access to information and capital to take advantage of long term cost savings from energy investments. Local energy resources are used to help build a strong local economy.

An energy-aware community is compact and complete, with dynamic multi-use nodes serving as centres of residential, business, recreational and cultural activity. Energy use in buildings, transportation and infrastructure is all reduced in these centres, while opportunities for innovative energy supply systems are increased.

## **Energy and Community Development in BC**

### **Community Planning Challenges**

- Many BC communities are facing rapid urban development, with pressure to both accommodate new growth and preserve existing neighbourhoods.
- Many others face rising costs, a stagnant local economy, and uncertainty about the future.
- Virtually all communities face a growing demand for public infrastructure and services, and limited ability to pay.

### **Energy Policy Challenges**

- Canada has signed a series of international agreements to reduce "greenhouse gases" - gases that contribute to global climate change. Energy production and use is a major source of greenhouse gases.
- Under the Kyoto Protocol, Canada has a commitment to stabilize greenhouse gas emissions at 1990 levels by the year 2008.
- Decisions made at the community level about urban form, transportation, site plans and neighbourhood design have a profound effect on energy and energy-related air emissions.

### **Sustainability Challenges**

- Growing public dissatisfaction with community livability is driving new approaches to community planning that are compatible with good energy planning approaches.

### **Emerging Opportunities**

- New small-scale energy supply technologies now offer cost-competitive choices for delivering energy at the site, neighbourhood and community scale.
- A changing regulatory environment offers business opportunities for independent power producers, and, as a result, more energy choices for communities.
- The hidden costs of energy are being uncovered – including not just the price we pay at the pump and at the meter, but also land and property costs, infrastructure costs, health costs and many other non-financial costs.

### **How Do Communities Use Energy?**

Most communities use energy mainly in:

- transportation, for moving goods and people within the city;
- buildings, for heating, cooling, equipment and appliances; and

- infrastructure, for delivering municipal goods and services such as water and wastewater treatment.

In all these areas, energy use is influenced by planners, engineers or land developers through:

- regional growth strategies
- subdivision plans and approvals
- official community plans
- site planning and building design
- zoning bylaws and rezoning
- transportation and infrastructure plans
- neighbourhood concept plans

Because the urban form has traditionally been designed without consideration of these energy effects, B.C. communities, like other North American communities, are unnecessarily wasteful of energy. And because energy has typically been delivered by energy utilities completely independent of the community planning process, opportunities for innovative and cost-saving measures have been missed.

### **What's the Alternative?**

Community Energy Planning, or CEP, involves community and energy strategies that can be applied at the local level by planners, engineers and developers in cooperation with utilities. It involves land use and transportation planning, site planning and building design, infrastructure design and efficiency, and planning for new energy supply options. It can be applied either comprehensively or incrementally, and it can be adapted to suit any community, small or large.

Community energy planning can:

- save or make money - for the municipality, land developers, local businesses and residents
- improve environmental quality
- improve community livability and other sustainability objectives
- contribute to the local economy and the creation of high-value jobs
- contribute to meeting greenhouse gas reduction targets

But making it happen requires that local politicians, planners, engineers, land developers, and most importantly the public, recognize how much our current approach to energy is costing us - financially, environmentally and socially.

## The Hidden Costs of Energy

The lights stay on, there's gasoline at the service station. Why should we do anything?

### 1. To reduce energy expenditures by governments and taxpayers.

Energy costs seem small because they are spread out over many services. Taken together, they can be very significant, especially in some smaller communities. If there is a less expensive way to provide energy services, including all costs to all parties, the enterprising government will find it, exploit it, and make arrangements to share the cost savings with everyone.

### 2. To save non-energy capital and operating expenditures.

Traditional energy efficiency was oriented exclusively towards reducing energy bills. Today's energy planning focuses more on benefits and cost savings in other areas. These benefits often dwarf energy savings.

### 3. To increase land values.

Much of the land area in BC's cities and towns is devoted to transportation in one way or another. The use of land for parking lots, roadways, service stations and used car lots is low-value, compared to its use for buildings and commercial services. This means communities are paying a lot in terms of foregone property values and associated property taxes.

### 4. To preserve non-financial land values.

Agricultural land, wetlands, forest and wildlife areas, and community watersheds all have important non-financial functions, and are being threatened in many regions by encroaching urban development or by transmission corridors for electricity and natural gas. A more compact urban form, lower energy needs, and local energy supply systems can help alleviate these pressures.

### 5. To reduce the costs of infrastructure.

Infrastructure in communities all over the province is in need of costly upgrades and expansions. Moderate density, mixed use and contiguous development patterns decrease the cost of linear infrastructure (roads, sewer lines, water lines, phone cables, energy utility wires and lines) simply because fewer kilometers of line are needed to serve the same customer base. This can reduce the up-front development costs facing developers and consumers as well as long term maintenance costs. The cost of "response-time" services (fire, ambulance, police, etc.) will also drop.

#### Energy Savings

A community energy planning study in the City of Coquitlam shows that energy aware planning can deliver:

- 30% less infrastructure capital and operating costs
- 5% reduction in total energy
- 400% increase in local job opportunities.



**6. To reduce noise and the "barrier" effect.**

The barrier effect is the increased travel time, discomfort and danger that roads and traffic cause to non-motorized travelers. Wide, high-speed roads are hard to cross and unpleasant to walk along, due to noise, dust and smog. They pose a physical barrier to the elderly, to children and the disabled. They reduce access to desirable locations, impede social interaction in public places and create social barriers – 'the other side of the tracks'. A re-evaluation of a proposed British motorway expansion revealed that some \$20 million worth of barrier effects were missed in previous analyses. Community energy planning reduces the barrier effect by redesigning roads to accommodate pedestrians, cyclists and transit.

**Non-Energy Savings**

A front-loading clothes washer not only uses half the energy of a top-loading washer, it uses about two-thirds the water and half the detergent. This translates into concrete cost savings for water and wastewater utilities, developers and consumers.

In the US, land value foregone as a result of the national roadway system is estimated at \$75 billion annually. The annual value of free, off-street employee parking is \$37 to \$66 billion and the value of free parking for non-work trips is \$64 to \$132 billion.

**7. To reduce climate change due to greenhouse gas emissions.**

Greenhouse gases are naturally present in the atmosphere and keep the earth's temperature higher than it would otherwise be. Any combustion of fossil fuels (gasoline, natural gas, etc.) increases the concentration of greenhouse gases, primarily carbon dioxide, in the atmosphere. This acceleration of the natural greenhouse effect is slowly increasing the average global temperature. This in turn is expected to lead to changing climates throughout the planet. Climate change is perhaps the largest and most complex environmental issue humankind has faced. Expected effects include increased storm severity, coastal flooding, wildlife habitat loss, agricultural productivity losses, species extinctions, increased forest fires and the spread of insect-borne diseases. Community energy planning reduces climate change by reducing fossil fuel combustion. Further reductions are available through the capture and use of landfill methane.

**8. To reduce local pollution.**

Communities benefit directly from a clean environment. A clean environment and livable communities also attracts tourists and businesses, especially "footloose" businesses that can locate anywhere. Energy-related pollution includes for example –

- air emissions from vehicles, buildings and factories
- urban runoff to lakes and rivers (for example, motor oil and transmission fluids)
- increased solid waste (for example, non-recyclable automobile scrap)

- site and groundwater contamination (for example, transformer oil and PCB spills, leaking underground fuel storage tanks)

Community energy planning can reduce local pollution by reducing the need for transportation (especially the single occupant vehicle), reducing energy consumption, and increasing the use of cleaner energy alternatives.

**9. To achieve social objectives, such as:**

- Increased local employment and the creation of high-value jobs – through investments in energy efficiency or local energy supply
- Access to services for the elderly, the disabled and those who do not drive – by providing transportation choices and walkable communities
- Vibrant public areas and centres for arts and culture to flourish – by creating "complete" communities
- Safer neighbourhoods – because the presence of people on the streets discourages crime
- Preservation of greenspace – by concentrating development in targeted locations and limiting development in others
- Affordable housing – through the availability of multi-family housing and lower annual energy bills
- Superior indoor working conditions – through the use of advanced building and lighting technologies

Many of these social benefits also have financial benefits. For example, cleaner air leads to fewer health problems, which will save on hospital costs. Superior working conditions lead to concrete cost savings for local businesses.

## **Energy Strategies and Climate Change**

Energy efficiency measures, fuel substitution and alternative technologies can all be effective in reducing greenhouse gas emissions. Unfortunately, it's often difficult to motivate individuals, firms or governments to implement them on that basis alone. Some of the perceptual barriers about climate change that lead to inaction include:

- The issue is abstract - invisible, odourless pollutants whose effects can only be described statistically and that take place over generations.
- The problem is global - there is no perceived link between actions taken here and benefits occurring here.
- The predicted global temperature change seems small - a few degrees over decades. People think of these as minor because we are used to 50 degree variations over a year or 10 degrees in a day. But the last Ice Age was only about an average of 3 degrees colder, globally, than today.
- There's no large single culprit to focus on - cars, gas furnaces, water heaters, airplanes and steel mills all contribute to climate change.

Nonetheless, given current scientific understanding, the time for action is now. And the action of communities will be essential if real progress toward the goal of stabilizing greenhouse gas emissions is to be made.

### **How Big is Your Ecological Footprint?**

One measure of the sustainability of a community or region is the area of land and water required to support its population indefinitely at current consumption levels. The ecological footprint estimates natural resource requirements for the consumption of a city or region in terms of productive landscape.

The ecological footprint of an average Canadian adds up to over 4.8 hectares, of which more than half is related to the provision of energy. If all the world's population lived like the average Canadian, we would need three planets to satisfy everyone's consumption on a sustainable basis!

## **Energy as a Local Opportunity**

Most expenditures on fuels and electricity leave the community. Keeping this money in the community – either by reducing bill payments, investing in efficiency instead of supply, or investing in local supply options – stimulates the local economy.

### **What about jobs?**

Although community energy planning can't solve local unemployment problems, it can contribute to a better climate for job creation in three ways:

- investments in local supply lead to local jobs, while expenditures on imported energy yield non-local jobs;
- investments in efficiency tend to create more jobs per dollar invested than investments in energy supply, and these jobs are more likely to be local;
- savings associated with lower energy bills result in a re-spending effect as people spend their savings in the local economy.

Two decades of research have shown that there is almost no investment that creates fewer jobs per million dollars than large-scale energy supply. This means that large-scale energy supply projects are usually net job-losers, because another use for the same money will always be found, and that use will most likely deliver more jobs. On average, energy expenditures result in roughly 3 to 4 jobs per million dollars. Some are much worse. The Keenleyside Dam on the Columbia River system, for example, would have cost approximately \$26 million per permanent job. In comparison, investments in a typical mix of consumer goods and services produce about 12 jobs per million dollars invested.

It's also important to consider the kinds of jobs created. Jobs related to energy supply tend to require skills in occupations where there is little underemployment. They tend to be temporary (construction-related) and localized at the site. Efficiency-related jobs, on the other hand, tend to use a wide range of skills, and are spread out in both time and location. Many communities will have the kinds of skills needed for efficiency investments. Few have the kinds needed for the few permanent jobs that do arise from large-scale centralized facilities.

#### **How Significant is the Re-spending Effect?**

"Indirect" jobs result when people who save money on energy re-spend it on other goods and services. Not only are more jobs created, but the jobs are more likely to be local. In Kamloops, a 10% reduction in the community's energy bill – amounting to roughly \$25 million per year – could result in 300 new local jobs.

### **What about local utilities?**

In BC, at present, there are six municipal electric utilities: New Westminster, Summerland, Penticton, Kelowna, Nelson and Grand Forks. Until recently, they have purchased power only from the integrated utility (BC Hydro, West Kootenay Power) in whose service area they lie, or generated it locally from long-established resources. However, as part of a North-America-wide trend towards "open access" of transmission, local utilities (which can be municipal or regional in scale and either

privately or publicly owned) are increasingly able to buy, and even sell electricity in a competitive market.

Locally owned and operated utilities are in a strong position to exploit local energy opportunities. For example, they could:

- use competitive pressure among generation suppliers to push prices down;
- build and use power from a local wood waste plant;
- productively use waste heat from local power plants, industries or municipal facilities;
- directly contribute to energy-efficient building and infrastructure design;
- provide special rates for electric vehicles;
- develop multi-utility sharing of services and infrastructure (such as metering) to reduce costs and improve customer choice;
- develop joint energy and water conservation programs.

Municipalities which already own local utilities can often be more responsive to local needs than regional or provincial utilities, which have obligations to balance the priorities of a wider range of stakeholders. However, the cost of establishing new utilities is likely prohibitive for most municipalities. These costs include the cost of acquiring assets, systems and new expertise. In addition, there are still some significant economies of scale associated with regional or provincial-scale utilities.

Municipalities without local utilities still have the ability to work with existing utilities to meet local objectives. For example, a municipality can establish strategic partnerships or joint ventures to pursue mutually beneficial opportunities. Similarly, municipalities can use a variety of local incentives or disincentives to support programs and projects that have local benefits.

## **What Does Community Energy Planning Mean for Developers?**

Community energy planning should not create barriers to development. Many energy-aware strategies cost little or nothing for developers, provided they are included at the design stage and not as an add-on. There may even be opportunities to save or even make money. For example –

- An energy-aware community design will result in lower infrastructure costs which should translate into lower up-front development costs.
- Energy efficiency or on-site energy supply features can be exploited by developers to capture a growing market for sustainable living options.
- On-site energy options may offer developers profitable revenue generating opportunities. As long as the energy services are provided to a small and discrete group of tenants or owners, there is no need to form a utility.

For a more detailed discussion of what CEP principles mean for developers, see our case study *Sustainable Developer, Realistic Realtor*.

## **CEP, Climate Change and Sustainability**

### **Introduction**

"Climate change" and "sustainability" are two terms that have taken on increased significance at the municipal level over the past few years. Originally almost exclusively thought of as global issues far removed from City Halls, there is growing momentum for local political leaders to tackle what global leaders and commercial enterprises have so far failed to adequately address.

In partnership with organizations such as the *Federation of Canadian Municipalities (FCM)* and the *International Council for Local Environmental Initiatives (ICLEI)*, local governments in Canada and throughout the world have had considerable success in taking on both climate change and sustainability issues.

CEP is recognized as a key tool in for addressing these challenges. And increasingly, the public is expecting their local governments to demonstrate leadership on these critical issues. In this section, we describe how CEP can help.

### **Background to Climate Change**

Today there is an unprecedented level of consensus among scientists that the temperature of the Earth's atmosphere is increasing at least partially because of human activities. The BC Government's plan, *Weather, Climate, and the Future* explains that among its possible effects in BC, climate change could lead to rising sea levels and flooding, more frequent severe weather events, further declines in fish stocks, and a transformation of forests due to increased fire, pests, and disease.

The human activities that contribute to global warming are those that involve the release of 'greenhouse gases'. Carbon dioxide, primarily created in combustion processes, is the most significant greenhouse gas. Every time fossil fuels are burned anywhere on Earth, carbon dioxide is released into the atmosphere.

Over the past decade or so, the international community has been looking to stem global warming by capping the total global quantity of human-generated greenhouse gas emissions. Starting with the Montreal Protocol signed in 1987, the United Nations has attempted to find workable ways of tackling the problem multilaterally. However, carbon dioxide emissions in most countries, including Canada, continue to rise unabated.

### **Background to Sustainability**

The very fact that human activities are altering global climates is one example of why people are taking greater interest in issues of "sustainability".

Sustainability can be defined many ways, but the term generally implies acting in manner that simultaneously satisfies the priorities of:

- sustaining a viable economic system
- sustaining existing physical and environmental systems, and preserving non-renewable natural resources, for the benefit of future generations

- finding ways of living together that we can all agree are fair, meaningful and fulfilling (including from the perspective of future generations)

Sustainability principles are as relevant to local systems as to global ones. For example we might talk about "sustainable cities" or even "sustainable buildings" - the implication being that economic, environmental and social objectives are being considered more explicitly than in the past, and that a more determined effort is being made to balance them. The ambiguity inherent to this endeavour has left some skeptical of the notion, but most people understand and respect the intended meaning of the term.

## **How CEP can help stem climate change and promote sustainability**

Climate change is directly linked to emissions of greenhouse gases, which themselves are directly linked to energy use. The table below, taken from the *National Climate Change Secretariat's Municipalities Issue Table Foundation*, shows how various CEP land use changes detailed throughout this Toolkit can affect urban energy demand, and so greenhouse gas impacts.

<b>Land Use Address</b>	<b>Mechanism</b>	<b>Energy Implications</b>
Combination of land use factors (shape, size, interspersed, etc)	Travel requirements (esp. trip length and frequency)	Variation of up to 150%
Interspersed of activities	Travel requirements (esp. trip length)	Variation of up to 130%
Shape of urban area	Travel requirements	Variation of up to 20%
Density/clustering of trip ends	Facilitates economic public transport	Energy savings of up to 20%
Density / mixing of land uses / built form	Facilitates cogeneration of heat and power	Savings of up to 15%. Efficiency of primary energy use improved up to 30% with district energy
Layout / orientation / design	Passive solar gain	Energy savings of up to 20%
Siting / layout / landscaping / materials	Optimize microclimate	Energy savings of at least 5%; more in exposed areas.

The same changes in urban form promote sustainability objectives in a variety of ways.

Denser, more compact urban areas are generally more "liveable" than sprawling suburban areas, for example. The enjoyment of public space is considered by many to be an important social priority. Well designed areas have a feeling of liveliness and energy; they are interesting and safer places to walk around, and so people do actually walk around. This sets a stage for face-to-face interaction, and the establishment of a sense of community and "place".

As the table suggests, denser areas have an increased viability of public transport, and so people again are coaxed out of their cars and into public areas. Social

exclusion is reduced as people who cannot afford a vehicle have better access to areas served by public transport.

Perhaps most critically for some, CEP also promotes the third and often overlooked aspect of sustainability: economic viability. By using fewer materials and less energy, community energy planning helps reduce the cost of developing areas too.

*"Municipalities are not just locations where a great deal of energy using and other activities take place that affect the level greenhouse gas emissions and sinks; municipalities are themselves integrated systems that can be designed and planned in ways that reduce energy requirements and enhance greenhouse gas sinks. A key component of this broader strategic approach is community energy management (CEM) – the integration of energy considerations into municipal planning and management processes in a way that can yield multiple benefits that exceed the impacts of individual and disjointed initiatives".*

*Municipalities Table Foundation Paper*



## Including Energy in Community Plans

There is no fixed formula for conducting a community energy plan. The needs of smaller communities will be different from those of large metropolitan areas. They also have different levels of resources. Community energy planning can take a variety of forms – both in scope and in scale – to meet local needs.

	"Single Issue" Energy Plan	"Energy Component" of Community Planning Processes	"Comprehensive" Energy Plan
Scope	Targeted to one or more specific, high-profile local issues.	An energy plan prepared by community planners with the assistance of other firms and agencies involved in delivering energy services. Driven primarily by community planning, rather than energy goals.	A comprehensive plan that incorporates all parties into partnerships based primarily on energy objectives. Energy strategies are incorporated into community plans.
Drivers	<ul style="list-style-type: none"> <li>local fuel or electricity prices</li> <li>shortage or unreliability of supply</li> <li>facility siting conflicts</li> <li>local pollution problems</li> <li>attracting senior government money for specific projects</li> <li>local jobs</li> </ul>	<ul style="list-style-type: none"> <li>long term infrastructure costs</li> <li>local and regional environmental issues</li> <li>land use and transportation issues</li> <li>economic development</li> <li>livability</li> <li>housing affordability</li> </ul>	<ul style="list-style-type: none"> <li>Those in the columns to the left, plus</li> <li>minimizing total economic costs of energy services</li> <li>environmental issues, including climate change</li> <li>intergenerational equity</li> <li>adaptive strategies for technological change</li> </ul>

**Choose an approach to community energy planning that suits your own community's needs and resources.**

**Single-Issue Energy Plans.** Any single energy-related issue can be a catalyst for local involvement in energy planning. Often this can be a good way of getting started, especially for smaller communities. However, even a community energy plan

driven by a single issue should incorporate some systemic changes to improve the integration of energy and community planning. As a minimum, energy objectives should be included in official community planning documents. This helps to build awareness, provide a legal basis for further action, and encourage progress over time.

**Comprehensive Energy Plans.** The "comprehensive" approach is appropriate where energy issues are significant, not only from a local perspective, but also a regional or provincial perspective. Practically speaking, given today's climate of government fiscal restraint, the applications are likely to be limited.

**The "Energy Component" Approach.** For most communities, community energy planning will mean looking at energy options as a component of a broader community planning process. Energy objectives and strategies become part of a regional growth strategy, an official community plan, a neighbourhood concept plan or a site design. Additional information – such as detailed technical information, analysis, implementation actions and a monitoring program – can be outlined in a separate document, but the key commitments must be integrated into the main plans. The content and scope of a community energy plan can vary in keeping with the magnitude of local issues and the realities of budgets and staffing.

## The Community Energy Planning Process

### Build the energy team

Decide who will need to be actively involved in developing the community energy plan. This will depend on the scope of the plan. Consider forming both an energy steering committee to lead the plan through the political and planning process and a technical advisory committee to inform you about options and constraints. Many key players come from inside municipal government, including the Engineering Department.

#### Making it Happen

We often see two communities with very similar energy prices, economic structures and demographics; yet one is highly efficiency-conscious and the other is not. The difference is often not in the market, but in the will of one or a few people.



### Clarify community goals

This also depends on the scope of the plan. Goals are often stated explicitly in the regional growth strategy, the official community plan or a neighbourhood concept plan. Or, in smaller communities, they may stem from relatively informal public involvement processes. Examine these goals to see how energy strategies could help to achieve them. Develop explicit energy goals that build on existing priorities.



### **Draw the energy profile**

Find out how much energy your region, community or neighbourhood is using, where it comes from, how much it costs and how it affects the local and the global environment. There are sophisticated modeling tools that can help you do this. But you can also do a "back-of-the-envelope" calculation. Precise measurements are not essential; a broad understanding of the collective impact of energy use patterns on the community is.



### **Take the message to the community**

Once you know the current costs of energy services, talk about the benefits of an alternative approach. Make sure elected officials understand how energy relates to other priorities. Unless energy is a high-profile issue in your community, build energy into public involvement and education programs that have been developed for other planning issues.



### **Identify energy opportunities**

Identify all the parties that need to be involved in the implementation of the plan. These are likely to include energy and water utilities, large energy users, small business representatives, residents' associations, land and building developers, independent power producers, energy service companies, equipment and appliance dealers and senior government agencies. Use the Energy Ideas in Part II of this Tool Kit to get started. Review success stories in other communities and develop local ideas. You may need to subdivide the work into several categories and establish task forces to deal with them. But don't lose sight of the linkages.



### **Create planning options**

Develop several alternatives to evaluate and compare. If you are working on an energy supply plan, make sure you evaluate a range of supply and efficiency options. Remember that some options, like district heating for example, will be influenced by the location of new development and its design characteristics. If you are looking at energy as part of a regional growth strategy, official community plan or neighbourhood or subdivision plan or a site design, you have probably already generated some alternative plans or scenarios. These existing plans can be compared for their energy implications, and modified with energy strategies to create new and better alternatives.



### **Evaluate and select a preferred plan**

Evaluate alternative energy plans or development scenarios against community objectives. Where detailed modeling has been done, this will be relatively easy and will result in quantitative estimates of how each scenario performs with respect to economic, environmental and even some social objectives. However, even without detailed modeling, most alternatives can be compared and ranked.



### **Make an action plan**

Allocate resources to implement the preferred plan. Gain commitment from an individual or agency to lead each item and commit to a completion date or interim reporting deadline. Include a communications plan to the public in the action plan. Implementing simple, high-visibility projects immediately after completion of the plan helps to build momentum.



### **Monitor the results**

Define "indicators" to measure progress toward goals. Set targets and assign accountability for achieving them. You will also need to decide on a frequency of monitoring. Some indicators are easily tracked annually. Others require more effort for data collection and could be monitored every three to five years. Use monitoring results to identify which strategies are working and which ones aren't. Use this information to revise the action plan if necessary. Find ways to provide feedback to the community and to celebrate success.

## **Finding the Money – Investing, not Spending**

Many community energy planning strategies cost little or nothing, such as alternative land use planning approaches, certain building design features or educational initiatives. Others, like retrofits in municipal buildings or local energy systems, save money in the long term, but have up-front costs. These require financing.

Financing means finding capital: public, private or both. Here are some ideas –

### **Joint Ventures: A joint venture involves partnerships, either in financing or implementation or both**

#### **Public-Public Partnerships**

These can be either across departments within a government, or across levels of government. Partnerships may involve giving budgetary recognition to non-energy capital and operating cost savings that result from energy efficiency. For example, low-flow showerheads reduce energy bills, but also save on expenditures for new water supply and treatment infrastructure. If all departments calculate their collective energy bills, and collaborate to figure out what energy conservation measures will mean to water and wastewater costs, then joint planning and financing opportunities may emerge.

#### **Public-Private Partnerships**

Local governments often rely on private capital to achieve economies that taxpayers and internal and intergovernmental barriers won't let them exploit. If up-front costs are a barrier to a project that generates an acceptable rate of return in the long term, look for private investors that may have an interest in the project. Offset funding may be an option. Some utilities, agencies or industries are required by law to meet certain standards (such as environmental or efficiency standards). If a municipality has lower-cost options for meeting these targets, they may be able to implement programs in exchange for funding assistance. For example, instead of costly upgrades to air pollution equipment at generation facilities, a utility might fund a van pooling program to achieve the same reduction in air emissions at lower cost (see inset).

#### **Third Party Financing**

While joint ventures imply shared responsibility for implementation, third party financing means bringing in an external party simply to pay up-front costs. There are a number of players that could be involved.

#### **Energy Service Companies**

Energy Service Companies, or ESCO's, are private firms that offer technical and financing services for energy supply and efficiency investments. ESCO's are a large and growing business in North America. They can put up the

#### **Financial Aggregation**

For smaller municipalities, this may be the key to tapping large pools of private capital. Financial aggregation refers to municipalities grouping energy efficiency projects together to increase the size of the transaction in order to attract investors. Larger deals take the same amount of staff expertise and time to process, but create larger profits for investors.

up-front money and split the annual energy savings with the government. In this way, operating expenditures savings are "capitalized". The local economy can even benefit from having government pay for ESCO services in the design of infrastructure, sharing in the capital cost savings inherent in energy-efficient design.

### **Financial Institutions**

Many banks, trust companies and credit unions are starting to develop energy efficiency-related financial services.

### **Lease-purchase agreements**

This is a rental agreement in which an Energy Service Company or utility rents equipment, and perhaps related services, to the municipality. At the end of the lease, the municipality can buy the equipment at a nominal cost.

### **Fees and Taxes**

#### **User Fees, Surcharges and Surtaxes**

User fees, surcharges and surtaxes are often considered as merely a means of recovering costs. However, they can also be designed to create incentives for preferred activities. Most public opposition to additional charges can be alleviated by designing them to be revenue-neutral and keeping the costs and benefits within the same sector or user group. For example, Ontario's "feebate" system uses surcharges on inefficient cars to finance refunds to buyers of efficient cars.

#### **Development Cost Charges**

These are explicit charges by the municipality or region that serve both to cover the up-front costs of servicing new growth, and, if properly designed, to encourage preferred patterns of development (see [Energy Ideas for Municipal and Regional Infrastructure and Facilities](#)).

#### **Property Tax Changes**

An important long term energy efficiency investment is the geographic "de-averaging" of property tax rates. From sewer lines to bus routes, the costs of providing services to low-density neighbourhoods are higher than for dense ones. But they're buried in uniform taxes. Besides improving efficiency, charging homes and businesses in proportion to the costs they incur will help to re-vitalize core areas.

Profit and budget control are powerful forces: if an energy efficiency measure makes or saves money, there must be a way to finance it. The challenges are measuring the savings properly and creating incentives for working together.

#### **Cream skimming**

is an example of incomplete cost-benefit analysis and short term thinking. It involves selective implementation of only the most profitable measures, in a way that precludes, or greatly increases the cost of less profitable, but still profitable measures.

Instead, evaluate "packages" of measures that make sense for simultaneous implementation at a given site, or for a given customer or business. Implement the package that has the largest savings and meets or exceeds a pre-set payback or rate of return.

### **Credit where credit's due**

Under various programs, it is possible to gain credit for greenhouse gas offsets. The key to receiving recognition for emission reductions is to clearly quantify and document how and why greenhouse gases have been reduced as a result of undertaking an action.

Some of the cost-sharing opportunities include:

- energy efficiency retrofits in commercial, institutional and industrial buildings
- energy efficient technology or cleaner energy supply systems in new commercial construction
- district heating systems
- methane recovery and reuse/recycling projects, such as those from municipal landfills
- van pools and alternative-fueled fleets (bus and commercial fleets)
- energy conservation-oriented public education activities
- wood residue-fueled cogeneration projects.

#### **Opportunity or Burden? Investment or Expense?**

CEP works best with an enterprising local government.

For example, the City of Portland found out it had 830 electricity, natural gas and transportation fuel accounts among 8 bureaus, adding up to a \$9 million bill annually. Seeing an opportunity, it then created a mini-business inside its own bureaucracy, seeded by a 1% assessment on the energy bill of each department -- \$90,000. The Portland Energy Office gave back free energy audits and advice to each department and split the savings from bill reductions with them. In three years the city saved over \$600,000.

The Portland Energy Office leverages \$4 in grants and contracts and more than \$13 in private energy efficiency investments for every \$1 of its own expenditure.

## **Getting the Message Out – and Making it Happen**

All the best technical tools and strategies will be ineffective if the public is not aware of, involved with, and committed to the community energy planning process.

How and when to involve the public depends on the issues and the available resources. Some key triggers for public involvement include –

- when issues are complex
- when critical information is lacking or uncertain
- when issues are marked by high levels of conflict or concern
- when goals and priorities are unclear
- when success depends on public support or action

You may not need comprehensive public involvement to initiate efficiency programs in municipal facilities. However, when evaluating alternative plans for community development patterns, neighbourhood design standards or community energy supply systems, effective public involvement will be essential.

Public meetings and open houses are good ways of providing information to the public and getting feedback on development proposals. However, the "inform" and "collect feedback" methods of public involvement are increasingly seen as limiting – by both planners and the public – and more interactive methods are being devised.

The public can be an invaluable source of knowledge, instinct and innovation. Here are some ideas for tapping that resource –

### **Which is faster, car or bicycle?**

If you're a city driver, add the amount of time you have to work to pay for your car transportation to the amount of time you spend driving your car and divide the total into the number of kilometres you drive. Can you bicycle faster than this?

## **Workshops**

Design facilitated task-oriented meetings that involve a small number of participants and have a "problem-solving" purpose. Workshops are effective for setting goals, identifying and evaluating options and making an action plan.

## **Focus Groups**

Invite a small group of participants to provide feedback on a specific issue and use the meeting to gauge the likely response of a broader group. Focus groups help to provide a detailed understanding of the concerns of either a specific constituency or a broad spectrum of interests. They can be useful for assessing the acceptability of certain energy strategies in the local community.



## **Advisory Committees**

Form advisory committees to deal with a complex policy development or planning issue over a fairly long time frame. Functions range from identifying issues, to evaluating options to developing action plans.

## **Monitoring Committees**

Form "watchdog" committees to monitor results. These are like advisory committees in that they deal with complex planning issues over a long time frame, but are more focused on the implementation of action plans. They can dramatically improve the chances of maintaining commitment and progress over time.

## **Target Briefings**

Use presentations to a selected constituency – usually one that is more adversely affected by a problem or option than the general public – to clarify issues and build consensus.

## **Design Charrettes**

Get everybody in the same place at the same time and "don't let them leave" until they jointly agree to a design. Successful charrettes ensure action because all the issues are brought out, because stakeholders formulate the design, and because all participants commit to the goals and products of the exercise.

## **Programs for Local Business and Developers**

Most enterprises, small and large, are looking for opportunities to save money. Sometimes just by providing information on cost-saving opportunities, businesses become leaders and catalysts of change. Reward innovative businesses who achieve significant energy and other resource savings by developing and publicizing "green business" awards. Look for ways to disseminate "best practices" and to support green business and industry networks. Regional Districts can offer similar programs for municipalities.

Here are some ideas for more effective communications –

### **Get a Champion**

A strong, committed individual can inspire new ways of looking at things. Most successful community energy strategies have been launched by one "prime mover". However, Champions don't stick around forever, so make sure things will continue to happen after they've moved on.

### **Attract Opinion Leaders**

People with stature or voice in the community should be sought out to endorse principles and make business happen.

## **Provide Feedback**

Maintain the momentum of a good start. Celebrate success and, if necessary, make course corrections early.

## **Tell People About What Others Are Doing**

Renew social standards by publicizing what others are doing. The effects can be startling.

## **Use Personal Communication and Visual Media**

Tell stories. They are far better absorbed and remembered than impressive statistics. When you do use numbers, use them in a way that has personal meaning. For example, "which is faster, car or bicycle?"

### **Publicize Changing Social and Business Norms**

The placement of a locker room sign, requesting that showers be turned off while users soap up, resulted in only a 6% compliance rate. When a researcher planted a single user who always complied, overall compliance increased to 49%. Two "plants" raised overall compliance to 67%! This demonstrates the effect that publicizing changing attitudes and values, whether in business, government or households, can have on individual and societal choices.

## **Educate Children**

Most adults do not grasp the enormity of many of the energy and environmental challenges we face. Nor is it easy for them to change old habits. Children, however, are forming their initial impressions of the world, and will absorb and personalize information. A well-educated next generation will be more receptive to change than the current one. After all, they're the ones who will be affected.

## **Use Visualization Techniques**

Say "moderate density" and "mixed use" to many suburban dwellers and the reaction will be anything but positive. But show some pictures of great urban designs, and people have a whole new perspective. Computer-aided models are one way of providing an interactive, fun, and educational experience. Citizens can build a common vision of the physical characteristics they'd like to see in future designs and become informed about new possibilities. They can rate viewsapes on a scale of one to ten, and the results can be used by planners and developers as input to the design process.

## **Working Together - Roles in the Development Process**

Each level of government, as well as private developers and consultants and community or environmental agencies, has a role to play in making communities more energy-aware. The following are some examples of what can be done at various stages of the planning and development process.

### **Regional Growth Strategies**

<b>Provincial Government</b>	<ul style="list-style-type: none"><li>• Provide assistance in interpreting the energy-related objectives of a regional growth strategy</li><li>• Require explicit consideration of energy objectives in regions with special energy issues or constraints</li><li>• Identify potentially commercially viable local and/or renewable energy resources</li></ul>
<b>Local Government (Municipalities and Regions)</b>	<ul style="list-style-type: none"><li>• Participate on regional stakeholder committees during the development of regional standards or strategies</li><li>• Identify ways to streamline approval processes</li><li>• Become familiar with energy opportunities and how they relate to growth management</li></ul>
<b>Developers</b>	<ul style="list-style-type: none"><li>• Include energy-efficiency and energy supply objectives in Regional Growth Strategies</li><li>• Identify municipal and regional facilities that could be used as energy resources</li><li>• Develop regional tax-base sharing agreements to ensure that competition for development doesn't undermine good land use decisions</li></ul>
<b>Utilities (Energy and Transit)</b>	<ul style="list-style-type: none"><li>• Provide technical support to regional committees on planning options that affect</li></ul>



options

- Identify potentially commercially viable local and/or renewable energy resources
- Participate actively as stakeholders and strategic partners in developing regional growth strategies
- Encourage local governments to include energy sustainability goals in official community plans
- Provide input about energy issues and options

## **Official Community Plans**

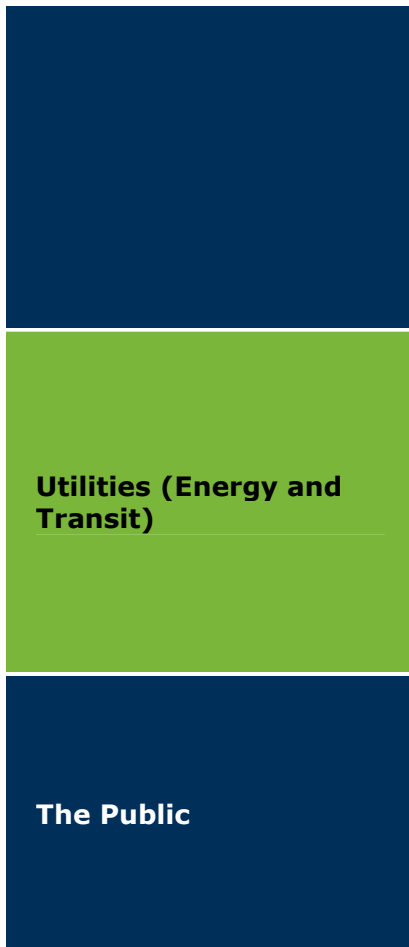


- Develop and distribute tools and methods for monitoring energy performance
- Provide information, financing and technical assistance on energy efficiency and supply options
- Revise the Municipal Act to give local government explicit authority to undertake energy-related initiatives
- Include energy-efficiency and energy supply objectives in Official Community Plans
- Involve energy utilities as strategic partners in official community planning processes
- Identify ways to streamline approval processes
- Become familiar with energy opportunities
- Become familiar with public preferences and potential market trends

<b>Utilities (Energy and Transit)</b>	<ul style="list-style-type: none"><li>• Participate on technical advisory committees to provide advice on energy- and transit-related issues</li><li>• Proactively participate in planning exercises to influence community development patterns</li><li>• Identify community-based service options and incorporate them into internal strategic and operational plans (such as Integrated Resource Plans)</li></ul>
<b>The Public</b>	<ul style="list-style-type: none"><li>• Encourage local governments to include energy sustainability goals in official community plans</li><li>• Provide input about local energy issues and options</li></ul>

### **Neighborhood Concept Plans and Subdivision Design and Approvals**

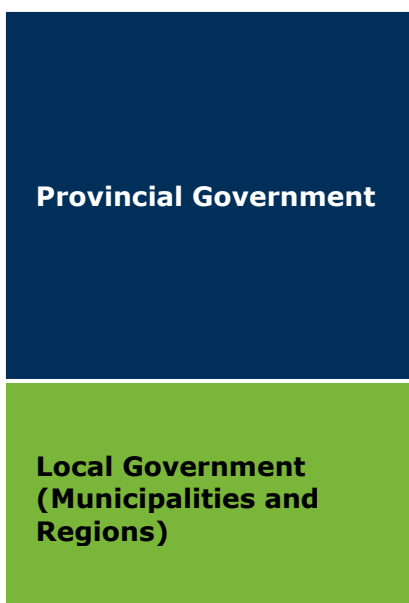
<b>Provincial Government</b>	<ul style="list-style-type: none"><li>• Provide training services for subdivision approval officers, especially in rural areas</li><li>• Encourage local governments to adopt Subdivision Bylaws that reflect good energy planning principles</li><li>• Encourage local governments to involve the public in evaluating a range of development options</li></ul>
<b>Local Government (Municipalities and Regions)</b>	<ul style="list-style-type: none"><li>• Estimate all of the costs and benefits of alternative neighborhood designs and educate the public about their choices</li><li>• Introduce energy considerations in developer negotiations for rezoning applications, subdivision plans and development permits</li></ul>
<b>Developers</b>	



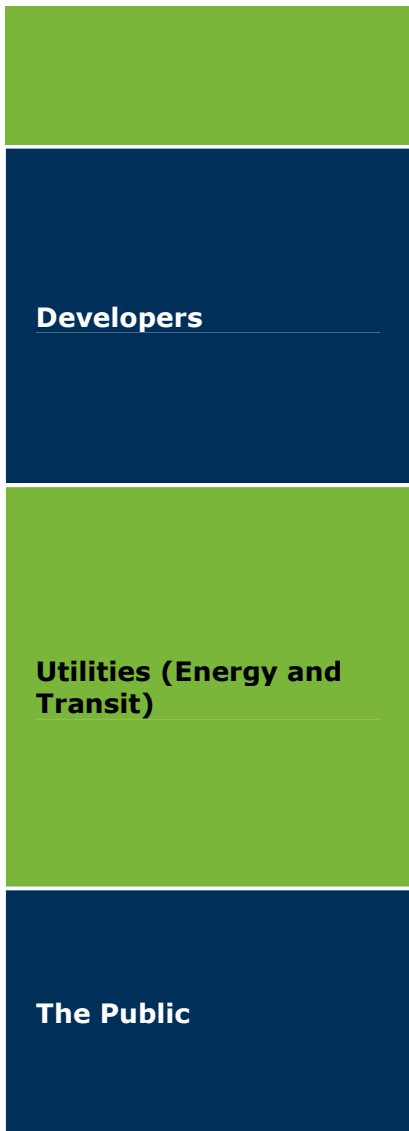
preferred development standards or design features that can be practically implemented in today's marketplace

- Organize and participate in design charrettes to help visualize design options
- Provide information brochures to planners and developers about energy and transit design alternatives
- Review subdivision plans to proactively flag service constraints and identify potential design changes to improve service quality or cost-effectiveness
- Make preferences for alternative neighbourhood designs known to planners and developers
- Participate in design charrettes and other planning exercises

## **Site Planning and Building Design and Approvals**



- Develop and promote provincial standards for building performance ratings
- Establish retrofit guidelines for energy efficiency
- Demonstrate energy efficiency standards and on-site energy supply options in provincial facilities
- Distribute information on energy options and financing to developers and builders at the permit counter



are consistent with preferred development standards for the neighborhood

- Ensure the design team is aware of cost-saving or cost-neutral energy options
- Market buildings on the basis of their long term costs and performance
- Encourage local and provincial governments to adopt building certification standards
- Provide technical assistance in developing building performance standards
- Provide information on design standards and financing packages for energy-efficiency options, on-site energy supply options, and on-site transit facilities
- Inform developers about emerging business opportunities in independent power production
- Make preferences for energy and sustainability features known to planners and developers
- Make purchasing decisions on the basis of "life cycle costs"

## **Transportation and Infrastructure Planning and Engineering**



- Require that local governments conduct an evaluation of all reasonable options (including demand management) before financing infrastructure expansion projects
- Link infrastructure financing to performance targets, including energy-related targets

**(Municipalities and  
Regions)**

(including demand management) for transportation, water, liquid and solid waste

- Develop new engineering design standards to accommodate the needs of alternative development
- Monitor energy use in municipal facilities and infrastructure.

**Developers**

- Adopt designs and features that recognize and mitigate infrastructure constraints or costs
- Support development cost charges that reflect the real cost of service

**Utilities (Energy and  
Transit)**

- Establish "sliding" development cost charges for energy hook-ups that reflect the real costs of different energy sources
- Coordinate corridor/rights-of-way planning with the municipality or region
- Investigate options for joint metering (energy/water)
- Provide financing for land use or transportation options that will reduce the cost of energy/transit service

**The Public**

- Indicate support for reducing the cost of infrastructure to local politicians, planners and developers



## **Barriers and Bridges**

Beyond actions that are directly related to community planning processes, government, private enterprises and individuals all have a role to play in breaking down broader barriers to community energy planning.

Some specific barriers and potential bridges for action at the local level include –

### **Barrier: Divided Responsibilities and Split incentives**

Some initiatives provide benefits to multiple agencies. When all benefits are taken together, the project may be more easily justified. However, no one agency sees enough benefits to take action. Sometimes this effect is the result of multiple agencies. But sometimes it even occurs across multiple departments within the same agency.

#### **Bridges**

- Seek out joint ventures – among public agencies, among private agencies and between public and private sector agencies. Create financial incentives for potential partners.
- Conduct joint planning exercises – for example, combining water, wastewater and energy savings from water conservation programs may show far more initiatives to be cost-effective than would be identified by any individual agency.

### **Barrier: Incomplete Cost-Benefit Analysis**

Some strategies only defer capital expenditures such as a planned road expansion. However, such deferrals have concrete benefits. They push borrowing costs into the future, and can result in lower costs in the future through advances in technology or other unforeseen changes. Continued deferral may ultimately have the same benefits as elimination. There are also external, or "social" costs that may not be included in traditional cost-benefit analysis. However, as government agencies, municipalities and regions need to be sure these are adequately considered.

#### **Bridges**

- Include the benefit of deferrals in project evaluations. Recognize that many small projects can incrementally forestall expenditures to the point that, even with growth, new technologies and social values may change priorities.
- Use an evaluation procedure that recognizes multiple criteria, not just costs that flow through municipal books.

### **Barrier: Restrictive Bylaws, Regulations and "Default" Controls**

Existing bylaws and regulations often contain language that prevent energy efficient and local or renewable supply options. "Boilerplate" text gets passed on from one subdivision design control to the next. These often reflect outdated values and technologies and prevent much-needed change.

## **Bridges**

- *Review and update existing by-laws, regulations and other controls.* The review should identify where, and how, rules or decisions prevent energy efficiency or local or renewable supply, and develop alternative specifications that meet both energy and other community objectives.

Examples may include:

- Is allowed residential floor space measured to the outer wall? If so, this provides a disincentive for thicker walls and more insulation.
- Do subdivision design controls disallow solar collectors on aesthetic grounds? Solar collectors today don't look much different from skylights. Some can be built into roofing shingles so they aren't apparent at all.
- Are engineering/architect fees established as a fixed percentage of construction costs in contracts for new municipal buildings? If so, there is no incentive for architects to propose efficient buildings since these may require additional design time for energy-efficient detailing. Cost savings in mechanical systems usually more than offset design time increases, but contracting arrangements may prevent this from happening.
- Are there minimum parking requirements per unit of commercial floor space or dwelling unit? If transit is a viable alternative, are these really necessary?
- Do your lot setback requirements create unusable space where in-fill units are permitted?

## **Barrier: Ad-Hoc Decision-making –**

There is a great deal of discretion in approvals of site plans, building permits, subdivision approvals and official community plans. Very often, the discretionary approach leans to the fastest, make-no-waves approach. Since energy doesn't run through municipal books, or even builders' books, energy benefits are the easiest to sacrifice.

## **Bridges**

- Politicians must include energy performance as a parameter for which municipal planners, engineers, and ultimately developers will be held accountable.
- If energy performance is to be regulated, stress performance-based regulation, not prescriptions.
- Use standard designs that guarantee certain efficiency, and software that estimates building and neighbourhood performance.
- Identify energy goals explicitly, and develop formal monitoring mechanisms and a strong communications program to maintain commitment over time.

## **Barrier: Lack of Information**

Information is inexpensive, and getting cheaper, but keeping track of it takes time and making sense of it requires training. If energy is not your business, you may not be able to keep up with the latest developments, even when they might be profitable. The energy sector is in a rapid state of change, in terms of both market structure and technology. This applies on both supply and efficiency sides.

### **Bridges**

- Work with energy service companies who have the expertise developed over 15 years of experience with efficiency measures in the utility industry.
- Develop partnerships with local energy utilities for advice and involvement in planning
- Work with suppliers of new energy technologies to identify local opportunities
- Assign responsibility to one or more staff members to "stay on top of" (as opposed to "become experts in") key energy issues

## **Barrier: Lack of Resources**

Lack of skills, staff, data or money can stop a community energy plan in its tracks. If planners, engineers or developers are intimidated by the idea of "energy" strategies, the plan may never get off the ground.

### **Bridges**

- Start by developing a culture of awareness and action in your municipality or region, your consulting business or design team. Encourage individuals to pursue areas of interest. Don't worry if things aren't 100% coordinated in the beginning.
- Start small. Consider conducting an energy plan at the neighbourhood level, before the community level.
- Use "back-of-the-envelope" calculations or data from similar communities, neighbourhoods or sites to get you started.

## **What Senior Levels of Government Can Do**

Beyond local barriers, senior governments need to work toward creating a broader environment that supports and encourages better energy planning in communities. They can –

### **Contribute to a better understanding of the full costs of energy by**

- eliminating fuel subsidies
- reducing transportation subsidies to put alternative modes of transportation "on a level playing field" with the single occupant vehicle
- promoting user-pay systems for all types of infrastructure
- implementing a carbon tax on fossil fuels to reflect social and environmental costs
- restructuring insurance rates to reward lower automobile usage rates

### **Catalyze implementation by**

- being a broker of information to communities, developers and the public
- financing the up-front costs of energy-related initiatives, including providing seed money for community based energy initiatives such as rideshare programs or car share cooperatives
- supporting joint ventures, including public-private, private-private and public-public partnerships
- providing technical resources to communities and regions to develop energy plans
- accelerating the development of modern municipal by-laws by preparing and offering, strings-free, appropriate text and formats to local governments
- developing better links between building developers and building managers so that long term costs (not just up-front costs) receive some consideration in development decisions
- support market and regulatory changes that improve access to technical assistance from the private sector (via energy service companies) and access to energy markets (via open access policies and rate design for independent power producers)

### **Improve energy planning and policy by**

- recognizing community energy planning as an important strategy for meeting international greenhouse gas commitments
- involving community planners in regional, provincial, national and international policy development processes for greenhouse gas emission reduction strategies

- working toward more integrated planning and policy-making that involves all the parties with responsibility for or a stake in better energy management

**Divided Responsibility at the Provincial Level**

Transportation consumes about a third of the energy used in BC. The Ministry of Employment and Investment is responsible for regulations under the *Energy Efficiency Act*, but vehicles are not regulated under the *Act*. At the provincial level, transportation and municipal planning are the responsibilities of the Ministry of Transportation and Highways, the BC Transportation Financing Authority, BC Transit, BC Ferries, BC Rail and the Ministry of Municipal Affairs. None of these has a mandate to manage energy consumption.

## **Appendix 1 – Community Energy Planning Resources**

### **Community Energy Association documents – available on the CEA website ([www.communityenergy.bc.ca](http://www.communityenergy.bc.ca))**

#### **A Toolkit for Community Energy Planning in BC**

Volume 1 – An Introduction

Volume 2 – Energy Ideas

Volume 3 – Case Studies

- Sustainable Developer, Realistic Realtor
- Quesnel: Small Steps Towards Better Transportation
- Shoal Point: Towards Sustainability in Victoria
- The Best of BC: BC Energy Aware Award Winners

#### **Other Community Energy Planning guides**

The ***Energy Aware Planning Guide***, a 350-page community-development planning tool for local governments. Produced by the California Energy Commission, the guide explores the connection between land-use patterns, automobile dependence, energy consumption and air pollution. Written by energy, planning and economic experts at the Energy Commission as well as by guest authors from the private sector, the document contains a wealth of ideas, opportunities and important information for understanding many of the complex linkages between energy, land-use planning, air quality, transportation and economics. It can be downloaded from their website at [http://www.energy.ca.gov/reports/energy\\_aware\\_guide.html](http://www.energy.ca.gov/reports/energy_aware_guide.html)

***Community Energy Planning – A Guide For Communities*** is a three volume guide produced by Natural Resources Canada. It can be downloaded from the NRCan website:

[http://www.sbc-bcd.nrcan-ncan.gc.ca/documentation/communities/volume\\_1.pdf](http://www.sbc-bcd.nrcan-ncan.gc.ca/documentation/communities/volume_1.pdf)

[http://www.sbc-bcd.nrcan-ncan.gc.ca/documentation/communities/volume\\_2.pdf](http://www.sbc-bcd.nrcan-ncan.gc.ca/documentation/communities/volume_2.pdf)

[http://www.sbc-bcd.nrcan-ncan.gc.ca/documentation/communities/volume\\_3.pdf](http://www.sbc-bcd.nrcan-ncan.gc.ca/documentation/communities/volume_3.pdf)

The ***Smart Communities Network*** is a website developed by the US Department of Energy and offers great resources, tools, links to articles and publications, and community success stories on a variety of topics from community energy, to green development, to sustainable business.

<http://www.smartcommunities.ncat.org/>