Advancing Solar Hot Water in B.C. – Local Government Policy Scoping Report

EXECUTIVE SUMMARY

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Executive Summary

In 1999, the notion that a solar hot water (SHW) policy for Barcelona would form the basis for Spanish national policy was likely unimaginable. Yet by 2006, the Spanish city's Solar Hot Water Ordinance inspired a national building code requirement that requires 30 to 70% of domestic hot water demand be met with SHW or other renewable technologies. The Barcelona example is now heralded globally as an example of how municipal action on sustainable energy can have far-reaching effects.

SolarBC commissioned Compass Resource Management to conduct a local government policy scoping exercise. Compass consulted with industry, the Province, and a number of local governments in order to:

- Identify best global practices for advancing SHW systems and describing their applicability within the B.C. context,
- Identify policy instruments for advancing SHW in B.C.,
- Outline considerations for advancing SHW in civic buildings, and
- Summarize the issues associated with integrating SHW with district energy systems.

Around the globe, there are a number of innovative and effective examples of policies that can advance SHW systems. The application of some policies is limited due to the limited legislative authority local governments have over building practices in B.C; however, there are many that can be adopted using available powers over land use and development (Table 1). Requiring homes to be solar-ready is a good example of a policy that is not available to all municipalities, but could be. The City of Vancouver now requires solar readiness in new homes. Vancouver has unique powers that other local governments do not have as a result of the Vancouver Charter; however, the City of Dawson Creek recently submitted an application to the Building Policy Branch to allow it to require solar readiness in new homes. There may be opportunities for the Solar Communities to select policies from the Best Global Policies table and champion their development with the Province and other key stakeholders.

There are a number of policy instruments currently available to local governments under their current powers (Table 2). Key instruments include density bonusing, phased development agreements, revitalization tax exemption program, and developing a rezoning policy. In addition, we encourage local governments interested in advancing renewable energy to include appropriate objectives in their OCP. Examples of notable OCPs are covered in greater detail in section 3 (OCP Objectives).

Local government's zoning powers allow them to address other issues that can enhance solar feasibility or overcome barriers. Building height restrictions can help ensure solar access, the zoning bylaw can exclude solar collectors from height allowances, and the zoning bylaw can

exclude the required space for SHW mechanical equipment in floor area ratio calculations.

A number of Solar Communities are exploring SHW installations for civic buildings. While pursing a preferred alternative technology can have economic and environmental benefits we recommend assessing and selecting a technology within the context of a broader Civic "Green" Building Policy. The main benefit of the policy is that it insures criteria and expected outcomes are consistently applied to all decisions, regardless of the application and/or actors involved. The cornerstone of a good civic building policy is to require all investment decisions be based on a life cycle cost analysis of various options. Tools for evaluating green building investments are discussed Section 4. Four examples of civic green building policies are also included.

Local governments with district energy systems or considering such systems may want to consider solar hot water systems in individual buildings. The DES could permit better utilization of the SHW equipment by allowing sharing of excess thermal energy during peak months across sites within a district energy service area.

In summary, we encourage the Solar Communities to collaborate to:

- Review the Best Global Policies in this report and engage the Province in exploring ways to bring those policies to British Columbia,
- Review land use development policies available to local governments, and possibly pool resources to further define how those policies may apply to advance SHW,
- Pool resources to develop the basis of a civic building policy that can be adopted by each of the communities.

Lastly, SHW is not a well known technology among inspectors. There is a need for greater training. Northern Lights College in Dawson Creek developed the first provincially-recognized certified Solar Hot Water System Installer course in Canada. The college collaborated with B.C. Sustainable Energy Association, the Association of Canadian Community Colleges, and the Canadian Solar Industry (CanSIA) to develop the course. This course could be replicated elsewhere in B.C. where there is interest. The Solar Communities could help facilitate course development by raising awareness about the Northern Lights program and course curriculum.[1]

[1] Course link:
http://www.nlc.bc.ca/public.course.php?CourseActiveList=coursedetails&CourseID=1274

Table 1: Summary of Best Global Practices

Policy	Description	Directly Applicable in B.C.?	Available Policy Instruments in B.C.	Issues
Solar Thermal Ordinance – Barcelona, Spain	- Requires minimum amount of hot water needs from solar	No	- Density bonus - Phased development agreements - Revitalization Tax Exemption - Rezoning policy	- Cannot require additional building features that exceed Code - Can establish SHW as an "amenity" and exact amenities through land use / development policy instruments - Can "incent" developers with tax / density benefits
Solar Retrofit Program – Rizhao, China	- Municipal-wide retrofit program and requirement for all new buildings to install solar panels	No	- Municipalities only have control over municipally-owned buildings	- China example highlights importance of collaboration between various levels of gov't and industry
Density Bonus – Hailey, Idaho	- Offers additional density in exchange for alternative energy installations	Yes	- Density bonus policy (SFU / Burnaby example)	- Additional density and amenity must be clearly outlined in Zoning Bylaw - Requires understanding of development economics and effect additional density can have on existing services
Solar Access Requirement – San Diego, California	- Requires minimum solar access for surrounding buildings	Yes	- Development Permit Area guidelines (Richmond example)	- Requires update / revision to DPA guidelines
Energy Efficiency Housing Standard – Freiburg, Germany	- Requires minimum energy performance for all City-owned or leased properties	Yes	- Could place a restrictive covenant requiring energy performance on all dispossessed City properties	- Energy performance requirements may devalue the property if viewed by the purchaser as an incremental cost.
Performance-based Renewable Energy Policy – Merton, UK	- Requires minimum amount of renewable energy on new commercial developments	No	- Could negotiate / incent minimum renewable energy requirement through various land use planning policy instruments: - Density bonus - Phased development agreements	- Recommend keeping this a performance-based policy due to the range of climate, solar incidence and fuel prices in B.C.

			- Revitalization Tax Exemption - Rezoning policy	
Solar Permitting – Portland, Oregon	- Formalize permitting process and offer in-the-field permitting service for additional fee	Yes	- Municipalities have authority to charge fees for additional service	- Must justify and report on fees - Cannot charge fees greater than what the service costs - Cannot cross-subsidize, i.e. charge non-solar permit higher fees to cover the solar permitting fees
New Mexico, U.S. – Solar Collector Standards Act	- Requires new low rise residential buildings to be solar ready	No	- Rezoning Policy - Density bonussing - Phased development agreements	- Cannot require additional building features that exceed Code - Can request “amenities” as part of a rezoning negotiation package and/or can incent solar readiness through density bonusing
City of Vancouver – Solar Readiness Requirement	- Requires new homes to be pre-plumbed to accommodate future SHW installations	No, only City of Vancouver	None	- Dawson Creek recently submitted a request to Building Policy Branch seeking permission to require solar readiness. - Other local governments interested in this should communicate their interest to Dawson Creek and Building Policy Branch as soon as possible.

Table 2: Summary of Available Policy Instruments

Policy	Application	Type	Pros	Cons
Development Permit Area Guidelines	All building types	Non-voluntary	- Can create conditions to insure solar access - New legislation allows DPAs for all building types, including SFDs	- Expensive to develop / update - Effectiveness depends on Council's willingness to ensure guidelines are met in DPA process
Alternative Energy Rezoning Policy	All buildings in rezoning process	Incentive	- Flexible – if designed properly, allows developer flexibility to meet energy performance standard-	- Additional requirements for developers and administrative layer for staff
Revitalization Tax Exemption Bylaw	All building types	Incentive	- Carrot approach - Can apply to an entire neighbourhood	- Requires indirect subsidy to green buildings
Building Permit Rebate	All building types	Incentive	- Carrot approach, offers a financial incentive for developers pursing a specified action	- Requires indirect subsidy to green buildings - May not be viewed as bona fide incentive to developers not retaining ongoing ownership of building
Development Cost Charge Reduction / Exemption	All building types	Incentive	- Flexible opportunities for definition of eligible development - Can encourage energy equipment external to the buildnig	- Potential lost DCC revenue if eligible development does not lead to infrastructure capital savings
Density Bonusing	All building types	Incentive	- Carrot approach, offers developers additional density for amenity	Competes with other amenities, e.g. affordable housing, libraries, etc
Phased Development Agreements	All building types	Non-voluntary	- Flexible, offers certainty to both developer and LG	Each agreement requires a bylaw and public hearing to consider