

OVERVIEW  
**Potential Climate Actions  
for Salt Spring Island**

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*prepared for*

**Islands Trust  
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## **Executive Summary**

This overview report is intended to form the starting point for a new Salt Spring Energy and Climate Action Strategy and to inform discussions regarding possible approaches to meeting proposed targets for greenhouse gas (GHG) reductions.

A considerable amount of work has already been undertaken on Salt Spring Island to quantify and track energy use and GHG emissions, to analyze potential options, and to develop and implement a GHG reduction strategy. This work was recognized at the provincial level with two separate awards in 2007, a Green City award and an Energy Savings Plan Community Challenge award. A brief overview of this work is presented.

The target established in the 2005 Salt Spring Island Community Energy Strategy was to stabilize GHG emissions at 2002 levels by 2012. The 2010 Baseline Report Second Update found that these targets would likely be met, primarily from changes in the island's light vehicle sector—more efficient models and fewer kilometers driven.

The province has established provincial GHG emission reduction targets compared to 2007 emissions, and local communities are mandated to include targets within their Official Community Plans. The Salt Spring Island Local Trust Committee has established draft targets of at least 15% in Greenhouse Gas emission reductions by 2015; at least 40% by 2020 and at least 85% by 2050 based upon 2007 data. Given increasing public awareness of the need to reduce GHG emissions and if current trends in light vehicle emission reductions continue, a 15% reduction in emissions by 2015 appears feasible.

A public Climate Action Workshop held Feb. 6 identified over 100 possible actions to reduce GHG emissions. This list was combined with actions from the original energy strategy and other sources and a preliminary, consolidated and prioritized table of potential measures was produced, organized under the headings of Transportation, Food and agriculture, Homes, Businesses and Institutions, Land use and conservation, Local low emissions renewable energy, and Community engagement and financing.

Two sectors—Transportation and Food and agriculture—were considered the most likely to produce rapid reductions to meet 2015 targets. Meeting 2020 and 2050 targets would require groundwork now in all sectors to achieve the fundamental shifts in public attitudes, planning objectives, and regulatory environments that can take years or decades to manifest results.

Salt Spring is well positioned to develop and implement an ambitious Climate Action Plan with aggressive targets. Local community organizations and volunteers are considered essential in implementing a climate action plan, but experience from this and other communities indicates that significant resources are needed to achieve significant results. Leadership by local government is a critical factor.

## 1. Introduction

This overview report is intended to form the starting point for a new Salt Spring Energy and Climate Action Strategy and to inform discussions regarding possible approaches to meeting proposed targets for greenhouse gas (GHG) reductions. The report provides a brief overview of the following with respect to current and future GHG reductions:

- Salt Spring Island Community Energy Strategy
- 2010 Baseline Report Update
- Findings from Salt Spring GHG reports and a review of selected initiatives
- Some examples from other communities
- Feb 6 Climate Action Workshop

A summary tabulation of potential actions is provided indicating priority areas for future action. It should be emphasized that this report is very preliminary and detailed analysis of potential actions remains to be undertaken.

## 2. Draft community GHG reduction targets

The proposed amendment to the Salt Spring Island Official Community Plan presents draft target objectives as follows:

*“To support a reduction of at least 15% in Greenhouse Gas emissions by 2015; at least 40% by 2020 and at least 85% by 2050 based upon 2007 data. Within the local trust area this reduction will be achieved by actions resulting from individual and community initiatives, the actions of other levels of government, technological changes, and changes to land use policies and regulations.”*

These targets are slightly more aggressive than the provincial targets of 18% by 2016, 33% by 2020 and 80% by 2050. Comparison with other communities is provided in a Nov. 26 Islands Trust Staff Report. The draft Salt Spring targets are comparable to targets set by other communities, and provincial and national governments around the world. Earlier targets set by some jurisdictions have already been met and demonstrate that significant reductions are achievable.

The actual percentage reduction targets to be selected may be of less importance than establishing and maintaining broad-based community support along with technical, financial and regulatory mechanisms to enable rapid, long-lasting and effective GHG reductions. Salt Spring can be mobilized, as other communities are mobilizing, to respond to the escalating global climate crisis. Avoidance of climate change impacts is impossible but taking action to reduce its most severe effects is critical.

### 3. Review of Salt Spring Island Community Energy Strategy

The original Salt Spring Island Community Energy Strategy was prepared in March 2005 by the Earth Festival Society. The targets set were as follows:

- Stabilize GHG emissions at 2002 levels (56,500 tonnes) by 2012, a reduction of 23% (16,700 tonnes) below projections (73,000 tonnes), excluding BC Ferries’ emissions.
- Reduce toxic emissions by 25% below 2002 levels by 2012.
- Reduce energy expenditures by approximately 20% below projections (\$22 million) as an indirect result of GHGs reductions.

The Energy Strategy identified **Drivers**: impacts of climate change, health impacts from products of combustion, economic impacts of energy purchases, and traffic impacts on safety and quality of life.

Matching **Goals** were as follows: reduce GHG emissions, reduce toxic emissions, reduce energy costs, and reduce traffic volume.

**Objectives** were divided into the following categories: information and education, capacity building, local governance and services, and community development.

From the Energy and Emissions Baseline Report, the Energy Strategy identified five sectors for action—transportation, residential buildings, commercial and institutional buildings, local food, and local power. BC Ferries was considered but not included.

*Table 1: 2005 Energy Strategy: Summary of GHG Emissions Reduction Actions to Meet Targets*

<i>Qty</i>	<i>Action</i>	<i>GHG reduction</i>	<i>GHG reduction</i>
<b>TRANSPORTATION SECTOR</b>			
10%	Vehicle Replacement	11%	
5%	Pedestrian Modes	10%	
10%	Bio-Fuel use, 15% Blend	4%	
3	Victoria Shuttle Trips Daily	1%	
	Island Bus – 80 Daily Users	1%	
5%	Fuel Reduction from Vehicle Maintenance	10%	
	<b>subtotal transportation sector</b>		<b>37%</b>
<b>RESIDENTIAL SECTOR</b>			
50%	Efficient New Homes	10%	
20%	Existing Home Retrofits	10%	
25%	Wood Stove Change-out	4%	
	<b>subtotal residential sector</b>		<b>24%</b>
20%	<b>INSTITUTIONAL AND COMMERCIAL BUILDINGS</b>		<b>4%</b>
10%	<b>LOCALLY GROWN FOOD</b>		<b>23%</b>
5%	<b>LOCAL POWER</b>		<b>12%</b>
	<b>TOTAL GHG reduction</b>		<b>100%</b>
(representing 23% of projected 2012 emissions)			

Largest savings, 37%, were to come from the transportation sector, followed by residential buildings, 24%, and food, 23%.

The 2010 Baseline Update report identified significant emissions reductions from the transportation, light vehicle, sector resulting from vehicle replacement and reduced vehicle kilometers travelled (VKT). Modest GHG reductions were also estimated for the new Salt Spring bus system. Electricity consumption data showed an increase in residential electricity consumption. Information from the meat production study showed a strong decline in locally grown meat, but produce data was not available.

Combining the 2005 Energy Strategy summary actions and proposed savings (Table 1) with the results of the Baseline Update indicates that certain areas were more successful than others, and that there is not always a strong correlation between level of effort (defined as the resources expended in the community promoting an action) and results. In the eight cases where there are data to indicate success rate, half correlate with the level of effort. In the other four cases, two have inverse correlation and the other two diverge by one level, i.e. medium level of effort with high success and medium level of effort with low success rate (Table 2).

Table 2: 2005 Energy Strategy—Summary Actions to Meet Targets and 2010 results

Qty	Action	GHG reduction	GHG reduction	level of effort	success to date
TRANSPORTATION SECTOR					
10%	Vehicle Replacement	11%		1	H
5%	Pedestrian Modes	10%		2	M
10%	Bio-Fuel use, 15% Blend	4%		1	?
3	Victoria Shuttle Trips Daily	1%		1	L
	Island Bus – 80 Daily Users	1%		3	H
5%	Fuel Reduction from Vehicle Maintenance	10%		1	?
	subtotal transportation sector		37%		
RESIDENTIAL SECTOR					
50%	Efficient New Homes	10%		1	L
20%	Existing Home Retrofits	10%		3	L
25%	Wood Stove Change-out	4%		1	?
	subtotal residential sector		24%		
20%	INSTITUTIONAL AND COMMERCIAL BUILDINGS		4%	2	H
10%	LOCALLY GROWN FOOD		23%	3	?
5%	LOCAL POWER		12%	2	L
	TOTAL GHG reduction		100%		
	(representing 23% of projected 2012 emissions)				

Notes to table:

Level of effort: 1 = low; 2 = medium; 3 = high

Success to date: L = low; M = medium; H = high; ? = unknown (no data)

See Assumptions for Table 2 on page \_ for further explanation.

Table 2 shows that three areas produced high levels of success—the institutional and commercial buildings sector, and vehicle replacement and the island bus in the Transportation Sector. Of these, replacement of vehicles with smaller and more energy efficient vehicles occurred with a low level of promotional activity.

#### 4. Review of baseline update report

The most positive finding of the 2010 Baseline Update report is that emissions from light vehicles appear to be declining, despite an increase in the number of insured light vehicles.

##### Light vehicles

When provincial trends for vehicle kilometers travelled (VKT) and fuel efficiency are applied to Salt Spring insured light vehicles, projections for 2012 suggest that energy and emissions may both be 20% below target. Although these reductions are predicated on assumptions and caution is advised, there are indications that the provincial trends on which they are based are applicable to Salt Spring. Increased fuel efficiency is indicated by the annual growth rate in the number of automobiles (2.1%) relative to SUVs and pickup trucks (1.6%), and by the increase in the number of Smart Cars and hybrids, which represented 5% of total late model vehicles in 2009, up from 0% in 2002. Decreased distance travelled is suggested by the decline in the number of underheight and overheight vehicles on BC Ferries (3.2% fewer trips in 2008 than in 2002), and by the Salt Spring Transit ride numbers (estimated avoided trip distance in 2009 is 0.6% of total km travelled). Therefore there is some confidence that the 2012 projections for light vehicles are realistic. An aging population and rising fuel costs are additional factors likely to result in lower VKT.

Between 2001 and 2007, average fuel consumption for light vehicles decreased from 8.5 litres / 100 km to 8.2 litres / 100 km. Current consumption is 8 litres / 100 km and further reductions are anticipated as aging vehicles are replaced by smaller, more efficient vehicles. Over the same period, the average distance travelled per year has declined from an estimated 14,880 km in 2002 to an estimated 13,094 km in 2007 and is projected to be 10,952 km by 2012.

Vehicle replacement and reduced VKT resulted in an estimated 5% (1,082 t CO<sub>2</sub>e) decline in GHG emissions from light vehicles between 2002 and 2007. Between 2007 and 2012 the decline is projected to be 11% (3,581 t CO<sub>2</sub>e). **Thus a 15% reduction between 2007 and 2015 appears very achievable, provided current trends continue.**

##### Commercial vehicles

There are no equivalent data for commercial vehicles. This needs to be addressed since GHG emissions from Salt Spring's commercial vehicles are likely between 7% and 10% of light vehicle emissions.

##### Salt Spring bus

The Salt Spring bus appears to be providing small direct annual savings from avoided automobile trips. The bus also enables pedestrian modes, which is an important benefit but difficult to quantify.

##### Residential energy consumption

The residential sector is of concern because there is little indication of increased efficiency of the existing housing stock and electricity consumption is now projected to be higher than the business as usual base case by 2012. Annual residential electricity consumption per connection has climbed from an average of about 17,000 kWh in 2002 to over 18,000 kWh in 2008. Part of the reason for the increase may be fuel switching from heating oil, propane and firewood. This would have GHG emission reduction benefits. However there are no data

to substantiate fuel switching.

### **New homes**

The number of building permits issued for new dwelling units each year has been generally declining since 2002. This trend is most marked for the single family dwelling category, which peaked in 2003 at 82 units and fell to 39 in 2009. A shift from single family to multi-unit dwellings would enable reduced per capita emissions, but that shift is not evident. Although new construction is more energy efficient than the existing housing stock, the inclusion of energy consuming luxury features in larger homes may offset lower energy consumption for space heating.

### **Commercial energy consumption**

The annual commercial consumption per electrical connection decreased from an average of over 40,000 kWh in 2002 to about 38,500 kWh in 2008, suggesting that businesses had become more energy efficient. However total electrical consumption over the same period increased due to the increase in the number of commercial connections.

### **BC Ferries**

Traffic data showed a 3.1% decline for light vehicles (underheight and overheight) between 2001 and 2008— representing a decrease by 9,451 in light vehicle trips. Heavy vehicle (semis and trucks) traffic increased by 19.9% over the same period— representing an increase by 2,117 in heavy vehicle trips. The increase in heavy vehicle traffic is of concern because of the strong indication that emissions from this sector are increasing, along with the implication that consumption of imported goods is also increasing.

### **Food**

Indirect emissions from conventionally grown food are included in the Baseline Report and updates. The Report on Salt Spring Island Livestock Production in 2008 found that number of cattle, sheep, pigs and goats on Salt Spring farms has decreased by about 44% since 2004. The number of poultry raised for meat has decreased by about 52% since 2004. The production of fruit and vegetables is increasing. An update to the 2005 Produce Study is currently underway. Preliminary data suggest that produce production increased considerably between 2004 and 2009.

### **Solid waste**

An estimate of emissions from solid waste was included for the first time in the 2010 update. Estimates are preliminary pending more information from CRD. Because Hartland Landfill has a methane collection system, solid waste emissions are relatively low.

## 5. Review of Salt Spring GHG reports and selected initiatives

Selected GHG initiatives in the community are briefly documented below. Three reports were reviewed:

*'Policy Options to Reduce Energy Consumption and Greenhouse Gas Emissions in New Residential Buildings'* by Deborah Curran & Company and the Pembina Institute, 2008;

*'The GHG Implications of Different Settlement Patterns on Saltspring Island'* undated report by Sustainability Solutions & Holland Barrs Planning Group; and

*'Microhydro Feasibility Study for Salt Spring Island'* by E. White, S. Davis, P. Grange, and J Booth, 2009

### Policy Options Report

Policy recommendations included the following:

- *Expand existing development permit areas for the objective of reducing greenhouse gases with particular focus on guidelines relating to tree retention.*
- *Evaluate the use of development cost charges as part of a comprehensive growth management and development financing review, not solely to promote green building.*
- *Create a tailored building permit fee for energy efficient buildings.*
- *Evaluate whether there are sufficient applications for development that involve parking spaces per year or per five years that would warrant using parking-in-lieu fees for alternative transportation infrastructure.*
- *Explore the potential for a density bonus in the form of a floor space increase to improve the energy efficiency of new buildings without compromising the community's goals for obtaining other amenities.*
- *Have the CRD consider adopting a tree cutting bylaw on hazard lands in, for example, development permit area 6 and all lands over a specified slope gradient to bolster enforcement opportunities.*

While all the above have merit, there are significant draw-backs to each. However the community messaging of having, for example, expanded DPAs supporting tree retention coupled with a more easily enforceable tree-cutting bylaw may outweigh the obstacles.

The Policy Options report found benefits to upgrading new housing for increased energy efficiency. Since upgrades to the BC Building Code to EGH 80 are proposed, local regulatory mechanisms, even if they were available, to require additional upgrades would have much less impact than retrofitting the existing housing stock. Of the upgrade options analyzed, the greatest savings on a per unit basis came from attached dwellings, followed by air source heat pumps (ASHPs). The latter, particularly ductless ASHPs, are suitable for retrofit of existing dwellings, where the resulting GHG reductions would be considerably greater than for new construction because of lower insulation levels and greater numbers.

The report included a simple analysis of carbon storage in 100 sq. metre stands of trees of different age and species. The analysis, which did not consider sequestration values or soil carbon, demonstrates the impact of felling trees for even relatively short lengths of

driveway. It concluded that policies to encourage both tree retention and increased energy efficiency can be pursued simultaneously.

### **Settlement Patterns Report**

'The GHG Implications of Different Settlement Patterns on Saltspring Island' modeled three scenarios to highlight the effect of transferring potential density to different locations on the island. At a threshold density of about 25 units per hectare, dwellings are attached, achieving energy efficiency savings of 29%. GHG emissions were found to be 22% lower in the village scenario and 7% lower in the hamlet scenario compared to the baseline of build-out under existing zoning.

The report indicates that densification of the villages and the removal of development potential from the rest of the island will be important in meeting long-term GHG reduction targets. The village densification process has already started, as evidenced in Ganges by infill residential construction, including some townhouse development and multi-unit affordable and supported living facilities. Changing settlement patterns is a slow process, but given consistent support from planners and elected officials, it is possible that multiplier effects from incremental changes may build momentum and measurable GHG reduction benefits within a decade.

### **Microhydro feasibility report**

The microhydro feasibility report found that developable microhydro potential was insufficient to meet the 2012 target of 5,400 MWh for locally generated renewable energy, but it could generate between 15% and 60% of that amount. Other technologies need to be considered such as tidal power, solar photovoltaics and wind power. The report also noted that energy efficiency measures such as attic insulation and *ASAPs* are more cost-effective than renewable energy and therefore should be prioritized.

### **Other initiatives**

A selection of other initiatives of potential significance are listed below.

#### *School District 64*

School District 64 has for many years been active in reducing energy use and GHG emissions. Initiatives include ground source heat pumps, lighting upgrades, and improvements to school bus emissions. As part of the public sector, SD 64 is required to complete annual Carbon Neutral Action Reports (CNARs) as part of the BC Greenhouse Gas Reduction Targets Act and the Carbon Neutral Government Regulation. These reports are available online and provide a useful model for other organizations.

#### *Area Farm Plan*

The implementation of the 'Plan to Farm' Salt Spring Area Farm Plan and other local food initiatives are assisting with the increase in local produce production.

#### *Partners Creating Pathways*

A coalition of groups has moved the Ganges pathways project from a planning objective to reality.

<i>Harbour House Hotel</i>	This local island business is a model for others taking steps to become carbon neutral. Measures include efficiency upgrades, a solar hot water system and the development of an organic farm to supply the restaurant.
<i>Murakami Gardens Energy Upgrades</i>	The Murakami Gardens affordable housing project received community funding for energy upgrades, enabling increased wall insulation, a heat pump for [make-up hallway ventilation], and a solar hot water system.
<i>Sustainability Checklist</i>	The Salt Spring Island Sustainability Checklist was developed in response to a recommendation in the Policy Options report and is now a voluntary part of the development approvals and building permit process.
<i>Transition Salt Spring</i>	Transition Salt Spring is a new initiative, part of the international Transition Town movement to increase community resilience in the face of peak oil and climate change. It is a grass-roots action oriented network with the potential to engage a broad cross section of islanders.

## 6. Other communities

A brief review of the useful and succinct *'The Climate Challenge—101 Solutions to Global Warming'* by Guy Dauncey, 2009 was undertaken. The following, from the 'solutions for communities' section and web links, are just a few of the examples that may be of relevance to Salt Spring:

<i>Set targets:</i>	The Kalmar region of Sweden is aiming at a 100% reduction by 2030.
<i>Appoint staff:</i>	San Francisco has one sustainability staff person per 11,000 residents. Portland has 1 per 14,000 residents. By 2007, the Portland area had reduced its GHG emissions to 1% above 1990 levels.
<i>Allocate a budget:</i>	San Francisco's department of the environment has an annual budget of \$20 million, or \$26 per resident. (An equivalent budget for Salt Spring would be about \$260,000.) Boulder, Colorado uses a local carbon tax that generates \$1 million a year to finance its Climate Action Plan.
<i>Carbon neutral fund:</i>	Saanich has established a carbon neutral fund to support local initiatives.

- ecoBUDGET:* A European framework tool for environmental management specifically developed for local governments. Mimics financial accounting practices, but designed for natural resources.
- Climate Action Teams:* Set up a Climate Action Council supported by sectoral Climate Action Teams to develop and implement climate action plans.
- Engage the community:* Many examples of volunteer and NGO partnerships in communities of different scales, all featuring slogans such as ‘Go Zero’ (Chew Magna) and the New Hampshire ‘Carbon Challenge’. (Transition Salt Spring may be a suitable vehicle.)

## **7. Review of Feb 6 Climate Action workshop**

Approximately 320 ideas were recorded on the flip chart notes of ideas from more than 100 workshop participants. These ideas were collected during small group discussions on transportation, land use, conservation, buildings, food and agriculture, energy generation, and other. After accounting for similar or duplicate ideas, over 100 potential actions remained.

Many of the suggested actions were included in the original Energy Strategy and some are in the process of being implemented or explored. These include expansion of the bus service, off-road footpaths, community gardens, trail dedication as part of development approvals process, densification of Ganges village, promotion of local food and ‘grow your own’, energy ratings for resale homes, and mandatory completion of the Sustainability Checklist. Other actions, particularly those relating to carbon sequestration and storage, were not included in the original energy strategy.

The flip chart notes are available online and Islands Trust has prepared a somewhat reorganized and condensed version for planning purposes. Both these documents were reviewed to see how they might be most useful. It was concluded that the best approach was to combine ideas from the workshop with the findings from the previous sections of this report, along with ideas from other communities where relevant, and develop draft summary tables of key measures. These are presented in the next section.

## 8. Draft potential measures

This section presents a summary list of measures organized under the broad sectors of transportation, food and agriculture, homes, businesses and institutions, land use and conservation, locally-generated low-emissions renewable energy, and community engagement and financing. Of these, the first two sectors are considered most likely to yield the greatest savings to meet short-term (2015) targets.

Each table presents a series of objectives. Under each objective, strategies to meet it are provided in the left column and potential actions to achieve each strategy are listed in the right column. The objectives and strategies are loosely ranked so that the first objective and associated strategy may be of greater importance in meeting short-term targets than the last. Actions included are somewhat arbitrary but were selected because they appear to have good potential and/or represent current community ideas.

Duplication of actions has been reduced to a minimum for brevity, although climate change measures tend to cross sectors and some actions could logically be listed under more than one sector and strategy.

Caution in using the tables is advised. The selection and ranking of objectives and strategies are subjective; actions are by no means comprehensive and have yet to be analyzed. A further complexity is the inter-related nature of actions. For example, the Salt Spring bus may have a small direct impact on GHG emission reductions but an enormous impact in promoting pedestrian modes and reducing automobile reliance. A comprehensive approach will allow apparently less critical but important supportive actions to be taken.

Further considerations are the long-term targets of 2020 and 2050. High priority items from a short-term perspective are the “low-hanging fruit”. Necessary fundamental shifts in public attitudes, planning objectives, and regulatory environments can take years or decades to manifest results, yet the groundwork is needed now if long-term targets are to be met.

## Transportation

<i>strategy</i>	<i>actions</i>
<b>Objective: Improve Light Vehicle Performance</b>	
<b>Efficiency and utilization improvements</b>	Vehicle replacement Reduced VKT Increased occupancy (ride share, car stop, park'n ride) Vehicle maintenance Fuel switching—biodiesel
<b>Switch to electric vehicles</b>	Plug-in hybrids Electric vehicle conversions Pilot EV fleet Neighbourhood Electric Vehicles (NEVs) in Ganges Charging infrastructure
<b>Objective: Improve Commercial Vehicle Performance</b>	
<b>Efficiency improvements to Salt Spring fleets</b>	Green fleets BC <a href="http://www.greenfleetsbc.com">www.greenfleetsbc.com</a> E3 Fleet Canada <a href="http://www.e3fleet.com">www.e3fleet.com</a> SD 64 bus fleet improvements as model for others
<b>Objective: Decrease automobile reliance</b>	
<b>Food and Expanded Salt Spring bus ridership</b>	Sunday bus Midday Fulford bus More bicycle carrying capacity Expanded routes Higher frequency of service
<b>More Bicycle use</b>	Bicycle lanes Off-road bicycle paths More bicycle carrying capacity on Salt Spring bus Bicycle sharing systems (white bicycles, etc.) Bicycle racks
<b>More Pedestrian infrastructure</b>	Complete Ganges pathways network Sidewalks Crosswalks Off-road pathways connecting residential and commercial/recreation areas Reduced speed limits in Ganges Traffic calming in villages Ganges NEVs to assist elders
<b>Parking design to encourage alternatives</b>	Reduce parking spaces required for new projects Parking lots on village perimeter Park'n ride Designate parking spaces for efficient small vehicles (Smart Cars, NEVs etc.)
<b>Objective: Reduce emissions from BC Ferries</b>	
<b>Work with BC Ferries to reduce emissions</b>	Include BC Ferries emissions in Salt Spring emissions inventory Encourage BC Ferries to adopt GHG reduction strategies

## Food and agriculture

strategy

actions

<i>Objective:</i> <b>Shift islanders' eating habits to climate-friendly diet</b>	
<b>Reduce GHG emissions from food purchases</b>	<ul style="list-style-type: none"> <li>Encourage shift towards vegetarian diet</li> <li>Increase consumption of minimally-processed organic food</li> <li>Increase consumption of local in-season and bioregional organic food</li> <li>Reduce consumption of conventional grain-fed beef and 'factory farm' animal products</li> <li>Reduce consumption of processed and frozen foods</li> <li>Reduce consumption of soft drinks and junk food</li> </ul>
<b>Increase local non-commercial organic food production</b>	<ul style="list-style-type: none"> <li>'Victory Gardens' campaign and information</li> <li>Provide community / allotment gardens</li> <li>Fruit harvest service for backyard orchards</li> <li>Edible public and private/strata landscaping</li> <li>Compost education and access to local compost</li> <li>Poultry club for information and education</li> <li>School garden program to teach young gardeners</li> <li>Permaculture education</li> </ul>
<i>Objective:</i> <b>Increase local production of climate-friendly food</b>	
<b>Increase local commercial organic food production</b>	<ul style="list-style-type: none"> <li>Expand winter vegetable production</li> <li>Expand production of high calorie crops (potatoes, pulses, nuts, grains)</li> <li>Increase on-farm rainwater catchment and storage for summer irrigation</li> <li>Investigate biochar to increase soil fertility</li> </ul>
<b>Improve infrastructure for commercial growers</b>	<ul style="list-style-type: none"> <li>Depot for expanded local organic produce distribution system (GUO)</li> <li>Central composting facility to increase supply of local compost</li> <li>Mobile abattoir to rebuild local livestock base for soil fertility</li> <li>Create more agro-industrial zoning</li> </ul>
<i>Objective:</i> <b>Protect farmland and the viability of farms</b>	
<b>Ensure long-term access to agricultural land</b>	<ul style="list-style-type: none"> <li>Increase agricultural land under community ownership (Farmland Trust)</li> <li>Ensure agricultural lands in provincial parks are protected for agriculture</li> <li>Maintain policy of 'no net loss' of agricultural land</li> <li>Discourage non-food uses of agricultural land</li> </ul>
<b>Reduce financial and regulatory barriers</b>	<ul style="list-style-type: none"> <li>Recognize carbon sequestration and storage value of small-scale organic and permaculture farming systems</li> <li>Enable farmworkers to live on/adjacent to the land</li> <li>Increase tenure options, create innovative zoning to allow several families to live on one farm</li> <li>Permit value-added farm uses (e.g. portable sawmill, increased % processing of neighbours' produce)</li> <li>Clarify/simplify permitting requirements for hoopouses/greenhouses</li> <li>Link landowners with farmers without land</li> </ul>

## Homes

strategy

actions

<b>Objective: Reduce energy consumption and GHG emissions from existing homes</b>	
<b>Encourage conservation and efficiency through lifestyle changes</b>	Information, education, challenges, 'Switch it off' LED lighting, power bars to reduce phantom loads Low-flow showerheads and faucet aerators Thermostat set-backs, water heater switch off Shrink-wrap window film, draft proofing 3-Rs and composting
<b>Reduce emissions from wood burning appliances</b>	'Burn it Smart' workshops and information Encourage reduced use of woodstoves Woodstove and fireplace change out program Woodshed etiquette Encourage reduced use of woodstoves
<b>Increase efficiency through home retrofits</b>	Promote EcoEnergy home retrofit program Encourage mandatory EGH labeling of resale homes Promote Sustainability Checklist Secondary suites and room rentals to increase occupancy of efficient, retrofitted dwellings Train sales staff to explain correct use of retrofit products Educate building officials in home retrofit procedures Encourage use of ductless Air Source Heat Pumps
<b>Increase efficiency of low-income, seniors' and supported living housing</b>	Information to housing providers and building managers Affordable Warmth BC from City Green for landlords and tenants <a href="http://www.citygreen.ca">www.citygreen.ca</a> BC Housing Endowment Fund
<b>Objective: Reduce energy consumption &amp; GHG emissions from new homes</b>	
<b>Increase construction of energy efficient attached housing in the villages and close to bus routes</b>	Information, education on the benefits of attached dwellings Encourage use of labeling and voluntary green building standards Support energy efficient building strata applications Support applications for senior's and Abbeyfield attached building complexes Support innovative energy efficient co-housing, coop housing, and agricultural hamlets
<b>Encourage smaller and near net zero homes</b>	Information, education on the benefits of small, near net zero homes Encourage use of labeling and voluntary green building standards Make the Sustainability Checklist mandatory Technical information for designers and builders
<b>Objective: Reduce embodied energy in construction materials</b>	
<b>Encourage buildings with low embodied energy</b>	Alternatives to Portland cement Local and natural building materials Products with recycled content, and recyclable products

## Businesses and Institutions

*strategy*

*actions*

<b>Objective: Reduce energy consumption &amp; GHG emissions from island businesses</b>	
<b>Encourage a culture of environmental awareness</b>	<p>Promote the Chamber of Commerce green accommodations program</p> <p>Support the development of similar programs for island restaurants, retailers, realtors, etc.</p> <p>Use local business concerns such as recycling and waste management as opportunities to promote environmental awareness</p>
<b>Provide role models and information</b>	<p>Provide information about the Natural Step and other models for business</p> <p>Promote local champions</p> <p>Encourage networking and information sharing</p>
<b>Provide access to technical support and funding/financing</b>	<p>Provide technical support for energy audits and building retrofit</p> <p>Provide technical support for transportation analysis</p> <p>Provide information about BC Hydro and provincial and federal incentive programs</p>
<b>Objective: Support Carbon-neutral Salt Spring institutions</b>	
<b>Provide role models and information</b>	<p>Encourage networking and information sharing, especially between large institutions under provincial mandate to be carbon neutral and smaller institutions</p> <p>Promote local champions</p> <p>Provide information about measures undertaken by similar institutions elsewhere</p> <p>Help churches and community halls develop energy and climate action plans</p>
<b>Provide access to technical support and funding/financing</b>	<p>Provide technical support for energy audits and building retrofit</p> <p>Provide technical support for transportation analysis</p> <p>Provide information about BC Hydro and provincial and federal incentive programs</p>
<b>Objective: Require net zero new commercial and institutional buildings</b>	
<b>Make net zero or carbon neutral a requirement for development approvals</b>	<p>Require publicly-funded buildings meet recognized performance standards such as LEED Platinum</p> <p>Use regulatory tools such as DPAs and amenity zoning to reward net zero and carbon neutral proposals</p> <p>Introduce a Sustainability Checklist for non-residential buildings with a scoring system to assist developers in meeting high environmental standards.</p>

## Land Use and Conservation

*strategy*

*actions*

<b>Objective: Protect &amp; enhance forest carbon sequestration &amp; storage services</b>	
<b>Educate landowners</b>	<ul style="list-style-type: none"> <li>Promote and distribute Sustainability Checklist and Newcomers' Guide</li> <li>Funded outreach programs to landowners and realtors</li> <li>Support Stewards in Training and other school programs</li> <li>Use neighbourhood mapping to engage and inform</li> </ul>
<b>Use regulatory tools to restrict tree cutting and land clearing</b>	<ul style="list-style-type: none"> <li>Establish environmental DPAs for ecological services, including carbon sequestration and storage</li> <li>Develop tree cutting bylaw</li> <li>Enforce infractions and NAPTEP covenants</li> </ul>
<b>Provide incentives</b>	<ul style="list-style-type: none"> <li>Simplify and promote NAPTEP</li> <li>Include carbon sequestration within NAPTEP</li> <li>Fund incentives through offset purchases</li> </ul>
<b>Establish targets for protected areas</b>	<ul style="list-style-type: none"> <li>Protect 50% of island in some form</li> <li>Establish targets for "carbon buffer areas" and reforestation</li> </ul>
<b>Objective: Shift development from rural areas to villages to reduce GHG emissions</b>	
<b>Use planning tools to shift development patterns</b> <i>(see also new housing actions)</i>	<ul style="list-style-type: none"> <li>Simplify and encourage density transfer</li> <li>Encourage resource-efficient multifamily and three storey development in Ganges</li> <li>Encourage resource-efficient infill in existing residential neighbourhoods</li> </ul>
<b>Encourage or require water conservation in villages and residential neighbourhoods to enable greater densification</b>	<ul style="list-style-type: none"> <li>Rainwater catchment, use of non-potable water for irrigation and toilet flushing, conservation fixtures</li> <li>Complete Ganges playing fields irrigation water recycling project</li> <li>Require development proposals to include water conservation measures</li> </ul>

## Local low emissions renewable energy

*strategy*

*actions*

<i>Objective:</i> <b>Increase the use of solar hot water systems</b>	
<b>Support businesses and individuals in installing SHW systems</b>	<ul style="list-style-type: none"> <li>Provide information about SHW funding programs</li> <li>Target hotels, B&amp;Bs and other high use applications</li> <li>Organize buying circles for bulk discounts</li> </ul>
<i>Objective:</i> <b>Increase the use of solar electric (PV) systems, microhydro and wind</b>	
<b>Support businesses and individuals in installing renewable energy systems</b>	<ul style="list-style-type: none"> <li>Promote local renewable energy systems through eco-tours and workshops</li> <li>Encourage energy conservation measures as a prerequisite to installing renewable energy systems</li> <li>Provide information about renewable energy funding programs</li> <li>Provide information about net metering</li> </ul>
<i>Objective:</i> <b>Harness tidal currents in Sansum Narrows</b>	
<b>Investigate the potential for tidal current power generation</b>	<ul style="list-style-type: none"> <li>Partner with U Vic or other institutions to assess potential</li> <li>Undertake feasibility study</li> </ul>

## Community engagement and financing

strategy

actions

<i>Objective:</i> <b>Shift community values to support strong climate action</b>	
<b>Support Transition Salt Spring and other community outreach activities</b>	'Transition Island' or similar roadside signage, logo use and promotion at community events, 'branding' Network with all island groups, identify common goals Energy Circles, Climate Action Circles, neighbourhood pods Awareness raising projects: "SSI-Nut Capital of Canada" Information and promotion at public events Implement grass-roots actions Support inner transition and elder wisdom circles
<b>Support climate action programs in the schools</b>	Nature immersion activities Support Stewards in Training Use BC Greenschools teaching material Support SD 64 Carbon Neutral Action Program
<i>Objective:</i> <b>Provide financial support for climate action</b>	
<b>Local tax levy</b>	Use any available funds from CRD Parks levy to support SSI parks acquisition Encourage CRD and IT new requisitions to support climate action Make climate change action mandatory for new publicly-funded projects supported by tax levy
<b>Local carbon offset fund</b>	Establish local revolving climate fund to receive voluntary carbon 'offset payments' from individuals, businesses and institutions and use funds for local conservation, restoration, tree planting, and other projects with measurable GHG benefits.
<b>Local lending and investment circles</b>	Grameen Bank model to provide local farmers and green entrepreneurs with small loans Green investors club to share information about local green investment opportunities.
<b>Local green power utility or Energy Service Company</b>	Local utility and/or energy service company to invest in conservation and renewable energy projects, financed from value of energy savings or power produced
<b>Local green bonds</b>	Investigate use of local government bonds or debentures to fund capital projects Bank or Credit Union administered green bond fund earmarked for local projects
<b>Access regional, provincial and federal funding</b>	Use any available gas tax funding for climate actions Assist private and NGO sectors in accessing federal and provincial funds, e.g EcoENERGY, infrastructure grants, etc.

## 9. Concluding comments

Salt Spring is well positioned to develop and implement an ambitious Climate Action Plan with aggressive targets. The community has baseline data and several years of tracking for some key indicators. It has had a Community Energy Strategy, and energy and GHG reduction targets in place since 2005. Preliminary data suggest that 2012 emissions reduction targets will be met. Salt Spring is ready to move forward to the next phase.

The previous efforts may be characterized as modest in terms of targets, implementation resources, and results. The next phase may reasonably be expected to accomplish more. Since 2005 there has been a significant shift in international recognition of the climate crisis. Public policy, particularly at a provincial level, is increasingly supportive of GHG emission reductions. More resources to assist communities in meeting climate action objectives are becoming available. While not certain, it seems likely that expectations, requirements and support for climate action at the community level from higher levels of government will continue to increase.

Mandated provincial requirements, such as the inclusion of GHG reduction targets in Official Community Plans, and the carbon neutral operation of public institutions assist communities in meeting GHG reduction objectives. A large proportion of Salt Spring emissions result from choices made by individuals. Providing the information, motivation, and tools to support and quicken the necessary cultural shifts already underway is the challenge.

While emissions from the light vehicle sector and changing food purchases are considered to be two areas where large short-term GHG emissions reductions may be achieved to help meet 2015 targets, a comprehensive approach involving reductions in all sectors will support broad community engagement and the meeting of long-term targets.

Local community organizations and volunteers are essential in implementing a climate action plan, but experience indicates that significant resources are needed to achieve significant results. Leadership by local government is a critical factor. Hard decisions regarding the size and allocation of resources will be needed.

## 10. Assumptions and explanations

### TABLE 2

Columns 1 through 4 were taken from the Energy Strategy. They represent an analysis of potential actions for illustrative purposes. Further explanation is given in the Energy Strategy.

**Level of effort** was estimated based on education, information and promotion activities undertaken by the Earth Festival Society and other community groups for each action. It is a soft estimate, which could be refined by a detailed analysis of project accounts, volunteer time, number of events etc.

**Success to date** was estimated from measured data where available, and actual on-the-ground results. For example the construction of the Ganges pathways contributes to the M ranking of Pedestrian Modes.

Homes

Businesses and institutions

Land use and conservation

Local low emissions renewable energy

Community engagement and financing