

Green Growth Task Force Overview

A regional perspective on a
provincial opportunity
from

The Southern Alberta Alternative Energy Partnership:

*Alberta SouthWest Regional Alliance, Economic Development Lethbridge,
SouthGrow Regional Initiative*

**The Lethbridge Chamber of Commerce
Lethbridge College**

October 2009

I. Purpose

The Southern Alberta Alternative Energy Partnership (SAAEP) consists of three partner organizations -- Economic Development Lethbridge, SouthGrow Regional Initiative and Alberta SouthWest Regional Alliance -- that work in collaboration to develop the renewable energy industry in the region.

Renewable energy for SAAEP's purpose is defined as wind, solar, geothermal and bio-energy. Since its formation in 2005, SAAEP has supported industry partners to move their projects forward and has completed studies demonstrating the interest and viability of this region of Alberta for renewable energy.

Based on feedback from industry and on the research completed for this paper, it is evident the Alberta renewable energy industry, although growing, has recently lost pace to other Canadian jurisdictions such as Ontario and Quebec, as well as the United States. The growing international interest in renewable energy is also attracting investments to highly populated developing countries like China, where a number of European companies are establishing a presence. Investment in renewable energy appears to be at a slower pace in Alberta due to a lack of infrastructure, long-term provincial policies, focused promotion and incentives.

In the spring of 2009, SAAEP partnered with the Lethbridge Chamber of Commerce and Lethbridge College to form the Green Growth Task Force. This group was formed to:

- **Elevate awareness of the strengths of southern Alberta as a strategic opportunity for significant renewable energy development**
- **Address the growing competitive gap with jurisdictions**
- **Identify strengths and disadvantages through competitive comparisons**
- **Provide solutions and recommendations on how Alberta can leverage the assets of this region into increased economic strength**
- **Offset growing political and public relations pressures related to Alberta's energy reputation**

The Green Growth Task Force is interested in encouraging the Government of Alberta to use southern Alberta as an opportunity to generate significant investment in renewable energy and to offset the growing political and public relations pressures related to Alberta's fossil fuel industry.

Based on this review and the information gathered, it is the contention of the Southern Alberta Alternative Energy Partnership and our partners that Alberta is falling behind in efforts to attract a wide range of renewable energy investments.

“Southern Alberta is in the position and has the potential, with government policy leadership and economic stimulus, to be a leader in renewable energy development, increasing investment into the province and offsetting the existing perception of Alberta's fossil fuel industry.”

II. Background

Alberta currently generates 4% of electricity from hydro, 2% from wind power and 1% from bio-mass. Alberta's main electrical generation source is coal at 74 % followed by industrial cogeneration at 12%. Although cheap and abundant, coal has the highest environmental impact. Mixed with growing concerns of oil sands development, it has led to negative perceptions of Alberta's energy industry.

The Southern Alberta Alternative Energy Partnership and Lethbridge College have both researched and had some success with advancing renewable energy projects in southern Alberta. Specifically, SAAEP has completed research and feasibility studies that demonstrate the strength of this region for green investment. SAAEP has also supported the establishment of companies like Kyoto Fuels, BFuel Canada, and ECB Enviro North America. Lethbridge College has developed and led the creation of the award-winning Wind Turbine Technician Program. Through these processes, the opportunities for investment have become apparent and the Green Growth Task Force believes it will require greater resources than available regionally to capture the attention and interest of corporate investors and entrepreneurs.

III. Renewable Energy Investment Commentary

- Investment in renewable energy appears to be moving towards other jurisdictions due to lack of renewable energy policies and incentives and lack of promotion of Alberta as an industry-friendly and well-positioned location for these projects.
- A recent report completed by Ernst and Young titled *Renewable Energy Country Attractiveness Indices* points out that the United States remains top in the All Renewables Index while Canada has dropped from eighth to ninth position.
- To attract investment, SAAEP and its partners believe it is essential to have long-term policies to stimulate investment in this sector. Currently, Alberta's stated energy impact reduction strategies focus primarily on the capture and storage of carbon with a \$2 Billion Alberta government contribution.
- Alberta was once the leader in wind energy production in Canada but has recently fallen behind Ontario and Quebec, which produce 782 MW and 531 MW respectively. Alberta's capacity is currently 525 MW, although there is approximately 12,000 MW of wind power interest with 2,000 to 3,900 MW on the books.

IV. Global Perspective

- Globally, substantial 'Green Power' policies are in place. Most of the leading countries use feed-in tariffs, which allow generators to sell power to the grid operator at government-set fees that vary depending on the technology, guaranteeing preferred access to the transmission grid.
- The United States will spend more on renewable energy vs. Canada by a factor of almost 14 to 1.
- The US Administration announced \$106 billion in stimulus funding for green energy such as tax breaks, loan guarantees and incentives, plus \$15 billion a year over 10 years to develop wind and solar power and energy efficient vehicles.
- In 2008, the United States became the world's leader in wind. Texas leads with 7,118 megawatts of new wind capacity installed, taking over the lead from California. It is easier to build wind in Texas as the regulatory and permitting process is not as tedious as California.
- Colorado introduced The Clean Energy Development Authority to develop its renewable energy and renewable energy transmission. Colorado Sen. Salazar indicates that "*More than 1,000 renewable energy companies in Colorado are creating jobs.*" Vestas is spending more than \$1 billion in Colorado. The State offers incentives to solar, wind, geo-thermal and bio-energy producers from tax exemptions, grants and renewable energy loans.

V. Programs and Incentives to Develop Renewable Energy in Canada

The Government of Canada has two major initiatives for green power:

1. The Clean Energy Fund – supports the development and demonstration of promising technologies, including large-scale carbon capture and storage projects.
2. The Green Infrastructure Fund – supports short-term projects aimed at renewing public infrastructure, including road and sewer upgrades, as well as green infrastructure that contributes to cleaner air, land and water.

For homeowners, solar water heaters are also eligible for financial support under the Eco-Energy Retrofit Home Improvement Program.

The Canadian government has acknowledged that it will have to align its regulations and standards with whatever the US federal government ultimately puts in place, which most likely will be a cap-and-trade system.

VI. Provincial Policies, Targets and Incentives

Currently, Alberta is the only province with comprehensive regulations limiting industrial GHG emissions. These regulate emissions on an intensity basis, such that regulated entities are required to meet targets of GHG emissions per unit of production.

The Government of Alberta gave the first reading of the recently proposed Bill 50; The Electric Statutes Amendment Act, 2009 on June 1, 2009. It is projected that the current system will be at capacity within five years with the potential for power outages and rolling blackouts if additional capacity is not increased.

Ontario, Manitoba, Quebec and British Columbia are members of the Western Climate Initiative, which includes California and six other US states. This regional initiative aims to have a cap-and-trade system in place by 2012 and GHG reporting obligations beginning with 2010 emissions.

A. Ontario - The Canadian Example

Investments in new renewable energy projects already in place or under construction in Ontario total approximately \$4 billion.

Ontario has also introduced the Green Energy and Green Economy Act, 2009 (GEA) to the province at the forefront of renewable power development by tying support for renewable power development to domestic content requirements with the expectation that a sustainable, vibrant green economy will emerge. Noteworthy features of this proposed legislation include:

- Renewable power developers will sell power to the provincial authority under a "feed-in-tariff" system where qualifying projects will be entitled with a pre-determined rate per kilowatt-hour of renewable power. For example, 13.5 cents per kw/h for onshore and 19 cents per kw/h for offshore wind development. (rates are specific to the form of power)
- A renewable power project that will have an enhanced "right-to-connect" to the provincial electricity grid, alleviating a key constraint to additional green power on the Ontario electricity grid
 - Significant investment in a "smart grid"
 - Streamlined processes for project regulatory compliance and permitting
 - Create 50,000 jobs for Ontarians in its first three years

B. Provincial Comparisons

The tables below outline provincial policies, targets and initiatives undertaken by various provinces in Canada. *See the detailed incentives overview in Appendix A where descriptions are included.*

Provincial Incentives by Energy Type				
Province or Region	Solar	Wind	Bio	All Three
Ontario	Rebate Programs for Solar Energy Systems as well as Wind, Micro Hydroelectric and Geothermal Energy Systems Solar Thermal Heat Incentive	Standard Offer for Renewable Energy Net Metering		Community Power Fund Energy Technologies Funding Program
Quebec				Program to Promote Energy Efficiency
Maritimes		Net Metering High Resolution Wind Atlas <i>(designated land for wind projects)</i>		
New Brunswick				New Brunswick Power
Prince Edward Island		Energy Savings Bonds		Sales Tax Exemption for Consumers Renewable Heat Loan Program
Alberta			Bio-Energy Prams (BIDP and BCMDP) Renewable Energy Producer Credit Program Phase 2 Funding-Bio Energy	

Provincial Targets and Policies		
Province	Policy Tool	Renewable Energy as % of Total Generation
Nova Scotia	Renewable Portfolio Standard	5% by 2010, Additional 20% by 2015
New Brunswick	Renewable Portfolio Standard	Additional 10% by 2016
Prince Edward Island	Renewable Portfolio Standard	15% by 2010 (already exceeded)
Ontario	Directive	Additional 10% (2700 MW) by 2010
Alberta	Target	3.5% by 2008 reduce emissions by 20 megatonnes by 2010, 50 megatonnes by 2020, 200 megatonnes by
Province	Policy Tool	Maximum Renewable Energy Capacity
Newfoundland	Target	50 MW of wind power
Quebec	Target	4000 MW of wind power by 2015
Manitoba	Target	1000 MW of wind power by 2014
Saskatchewan	Target	100% new generation net zero GHG emissions

VIII. Challenges to Alberta Renewable Energy Development

In a series of interviews and discussions with Industry leaders, several barriers to the development of the renewable industry in Alberta were identified and are summarized below. The Green Growth Task Force is interested in solutions so ***please see Appendix B for a series of recommendations have been generated to provide ideas and solutions to addressing these challenges.***

The challenges identified by industry are summarized as follows:

- 1. Lack of provincial policies and investment into infrastructure:** This is the number one barrier identified by industry. Despite provincial mandate for ethanol and biodiesel in Alberta by 2010, there are no standards that exist in Alberta to mandate renewable energy development for wind, solar or geothermal energy.
- 2. Regulatory Process Improvement:** Locally developed project owners have challenges receiving approvals for non-fossil fuel based projects. Current regulatory environment was primarily built for the oil and gas industries. The time-consuming nature of working through the process increases costs.
- 3. Tax and Cost Implications:** Alberta's regulations still consider all grid connected solar PV electricity generators to be industrial generators requiring a "linear property tax" valued at 3% of their capital value. The capital cost of a solar PV system is already very high compared to the electricity it produces so it further reduces the economic feasibility of solar PV.
- 4. Pricing and Feasibility Support:** Business cases for renewable energy projects are often burdened with development costs due to the early stage entry of the participants. This is complicated by a value perception disconnect. When selling electricity to the grid, the value of renewable energy does not reflect how clean it is. As a result, the price of solar PV paid by the grid does not reflect the value to generate it or the value of the fossil fuelled electricity it displaces.
- 5. Transmission Capacity:** One of the most ubiquitous issues in Alberta. Alberta has seriously limited transmission capability across the south as well as north to south corridors. Conflicting limits on transmission create curtailment risks while transmission upgrade projects are continually delayed, reducing the potential for new projects to connect to the system.

IX. Recommendations for Enhancing Alberta’s Position and Leveraging the Southern Alberta Advantage

The following table outlines the identified challenges and barriers to significantly increasing the competitive strength of Alberta for renewable energy investment. In response to those barriers, a series of recommendations or ideas has been generated that may help address these issues. The partners in the Green Growth Task Force are interested in working with the Government of Alberta in moving this industry sector forward. Some of these recommendations may already be activated. Whether existing or new, we look forward to working together on supporting Alberta’s role in this economic and environmental opportunity.

Recommendations to Build A Strong Renewable Energy Industry in Alberta	Barrier(s) Addressed
<p>FIRST PRIORITY: Establish a Renewable Energy Action Team with industry and government representation to develop a renewable energy strategy and provide specific policy recommendations to the Alberta Government on how to develop the industry. Use Southern Alberta expertise and interest.</p>	<ul style="list-style-type: none"> • Lack of Renewable Energy Policy • Regulatory Process Improvement • Competitive Lag
<p>Develop transmission capacity (i.e. Bill 50) with a specific focus on expanding renewable energy access, not simply traditional energy transmission. Consider local applications and distribution.</p>	<ul style="list-style-type: none"> • Transmission Capacity • Lack of investment into infrastructure
<p>Expand provincial incentive programs beyond bio-fuels. Examples include partial or progressive feed-in tariffs to help early stage industries such as solar and geothermal applications and help provide financial certainty. Small community and industrial users would benefit from the support. Consider 10 year minimum to provide confidence to investors and reduce risks (Ontario at 20 years). Consider expanding access and scope of Alberta’s Renewable Producer Credit program past March 31, 2009. Continue providing incentives and support for biofuels, adding a focus that encourages the development of blending and distribution infrastructure across the province. Eliminate the linear property tax on solar PV or invest revenues back into the development of the industry.</p>	<ul style="list-style-type: none"> • Competitive Lag • Cost Implications • Pricing and Feasibility • Distribution systems
<p>Streamline renewable energy approvals process to support infrastructure and investment through a focused, simplified approach.</p>	<ul style="list-style-type: none"> • Competitive Lag • Regulatory Process Improvement
<p>Invest in the marketing, promotion and awareness of the renewable energy industry and opportunities in Alberta, specifically leveraging the southern Alberta opportunity. Promote the assets already established to expand the economic interest associated with these attributes (i.e. SAAEP research studies and maps, Lethbridge College Wind Turbine Technician Program)</p>	<ul style="list-style-type: none"> • Competitive Lag • Lack of investment in industry development • Public Relations perception of Alberta
<p>Coordinate an effort with the renewable energy industry to encourage the federal government to extend the ecoENERGY for Power program, which is scheduled to be discontinued in 2009. Match the federal incentive of 1 cent per kilowatt hour to companies generating wind, solar or geothermal energy.</p>	<ul style="list-style-type: none"> • Competitive Lag • Lack of investment in industry development • Pricing and feasibility
<p>Use the expertise of industry leaders who can encourage further expansion of the less-used renewable energy areas. For example:</p> <ul style="list-style-type: none"> - geothermal energy requires better understanding to fully comprehend its potential and feasibility - introduce a wind prediction tool that would optimize the use of wind energy and help manage grid use 	<ul style="list-style-type: none"> • Competitive Lag • New industry development • Pricing and feasibility

APPENDIX A – Additional Detail on Provincial Incentives

The following table explains what incentives are provided to industrial, commercial and residential consumers. Alberta's incentives are primarily tied to Bio-energy because of the strong Bio-energy Programs announced within the past five years, while other jurisdictions are related to the range of renewable energy opportunities.

Jurisdiction	Initiative	Details
Ontario	Solar Energy Systems Rebate Program and Wind, Micro Hydro-Electric and Geothermal Energy Systems Rebate Program	Offers rebates of the 8% provincial retail sales tax (RST) on the purchase of new, or expansions or upgrades to existing residential solar, wind, micro-hydroelectric or geothermal energy systems installed between Nov 26, 2002 and Jan 1, 2010.
	The Ontario Solar Thermal Heat Incentive	Offers rebates to the industrial/commercial/institutional sector of up to 25% of the costs related to the installation of solar air and/or water heating systems, to a maximum of \$80,000 per project.
	Community Power Fund	Helps incorporated groups, such as farmers, First Nations and community groups with renewable energy projects (wind, solar photovoltaic and thermal, small-scale hydro, geothermal and biogas). Grants of up to \$25,000 for feasibility and strategic opportunity studies, and up to \$300,000 for project development.
	Ontario Standard Offer for Renewable Energy	Sets a fixed price for small, grid-connected generation projects that use renewable energy and generate a maximum of 10 MW each. The Ontario Power Authority pays 11 cents/kWh for electricity produced by wind, biomass or small hydro. The price for solar photovoltaics is 42 cents/kWh.
	Net Metering	Customers will be billed for the difference of the value of renewable energy contributed to the grid and that of power drawn from the grid.
	The Powerhouse Renewable Energy Technologies Funding Program	Provides interest-free loans for residential installations of renewable energy systems.
Quebec	Program to Promote Energy Efficiency	Supports projects that develop new technologies in energy efficiency and energy production. Electricity and gas projects are eligible if they include another form of energy. Project categories are: R&D, laboratory experiments, technical demonstration, measuring/monitoring, commercial demonstration, increasing value and transferring knowledge, and publicity.
	Hydro Quebec grants	Grants for installation of residential ground source heating and cooling systems: \$2,800 in new construction, and \$2,000 for a retrofit.
Maritimes	Net Metering	Customers who generate 100 KW or less of renewable electricity will be billed for the difference of the value of energy contributed to and drawn from the grid.
	High-resolution Wind Atlas	Certain areas have been designated for large-scale wind projects.
Prince Edward Island	Sales Tax Exemption	Retroactive to April 8 2005, exemption is provided for purchases of small (100 kw or less) wind, biogas, heat pump, solar thermal, photovoltaic, and drain water heat recovery energy collection devices. Components of wind turbines are also exempt.
	PEI Energy Savings Bonds	Island residents, businesses and non-profit groups can invest in wind energy by purchasing bonds that are issued for 5 years at a 5% interest rate.
	Renewable Heat Loan Program	Offers low-interest loans of between \$1000 and \$5000 for wood, solar, geothermal and drain water heat recovery systems.
New Brunswick	New Brunswick Power	Will purchase power from small generators who produce up to 2 MW of power. The price paid depends on local market conditions and the type of renewable technology.
Alberta	Bio-energy Programs (BIDP and BCM DP)	Incentives are offered to producers of biofuel or biogas produced from facilities located in Alberta. Funding is offered to assist biorefiners to meet market requirements, penetrate new markets and pursue import replacement opportunities and to assist with the development and expansion of the distribution infrastructure of biofuel and energy transmission in Alberta.
	Renewable Energy Producer Credit Program	Biofuel producer credits will be provided to Alberta manufacturers and reviewed annually against key competitive North American jurisdictions. The minimum credit will be equal to the Alberta Fuel Tax, which is currently at nine cents per litre.
	Phase 2 Funding-Bioenergy	Bioenergy programs have been amended to allow companies to potentially access additional funding above the Phase 1 cap of \$5M.