



Biofuels Opportunities for Producers Initiative (BOPI)

A Compilation of Project Summaries

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Presented by:

The Southern Alberta Alternative Energy Partnership



Green Growth Plan

“Be a global leader in alternative energy development and manufacturing”

In 2006, Economic Development Lethbridge, SouthGrow Regional Initiative and Alberta Southwest Regional Alliance, identified common interests regarding alternative energy growth in Southern Alberta. Together, they created the Southern Alberta Alternative Energy Partnership (“SAAEP”), which represents 37 municipalities in the southwest and southcentral regions of the province. SAAEP has formed a management team with representation from each of the three sponsoring partners. The members of the SAAEP

The Sponsor Management Team is:

- Linda Erickson – SouthGrow Regional Initiative
- Cheryl Dick, Brenda Hunik, and Trevor Broadhead – Economic Development Lethbridge
- Bev Thornton – Alberta Southwest Regional Alliance

In the fall of 2006, the SAAEP Advisory Committee was formed to provide guidance and support in the development of the initiative. The Advisory Committee has representation from the agriculture, research and alternative energy sectors. The following individuals make up the Advisory Committee:

Del Allen, Paul Bohnert, Shelley Boutilier, Steve Cailliau, Bill Halley, John Kolk (chair), Broyce Jacobs, Klaus Jericho, Herb Groenenboom, Cal Koskowich, Gord Nelson, Ted Smith, Chris Spearman

In February 2007, SAAEP launched the Green Growth Plan (GGP). The GGP is a regional capacity building strategy that will:

- Analyze the region’s capacity for development of this new industry; and,
- Identify potential opportunities and barriers regarding the development and application of sustainable alternative energy systems and businesses.

The focus of the GGP is a multi-stakeholder public consultation process to gather information about the region’s assets or community features. Moving Forward, a Calgary-based company with expertise in facilitating collaborative processes, was contracted to plan for and facilitate community and industry meetings. Ten community meetings, one industry meeting and several industry and government interviews were conducted to identify community assets, and to seek ideas and recommendations to further develop the alternative energy industry in the region.

Feasibility Study - Integrated Bio-Diesel Refinery

BFuel Canada Corp. (BFuel) was established in 2006 to design, build and operate regionally integrated small to midcap biodiesel production facilities in western Canada. BFuel Canada Corp. is a natural renewable energy extension initiative of Greenwind Power Corp.

The flagship of the BFuel production mandate is the proposed development of a biodiesel facility in the community of Lethbridge Alberta known as the BFuel Chin Lakes Biodiesel Facility, (Chin Lakes). This proposed Chin Lakes canola crushing biodiesel plant in the county of Lethbridge has currently been evaluated with a capacity of 40 million litres per year.

The capital cost estimate for BFuel Canada Corp based on a 40-million-litre per year facility has been prepared by Trimark Engineering Ltd. It is anticipated that these values are within a -15%/+25% margin of error. The estimated total financial requirement is \$35 million, which includes \$30 million for facilities and equipment and \$5 million for working capital.

As an industry in the very early stages, external forces are expected to change considerably over time. At the present time, the government landscape looks very positive, with federal and provincial tax exemptions, per litre subsidies, as well as grants and low interest loans. In addition, the federal 2% blend mandate (5% in BC) by 2010, as well as expected efforts at reducing greenhouse gases in the future are also significant, the latter will have the most impact on the higher blend (B20 — B100) commercial and industrial markets that BFuel hopes to target. In addition, the development of an energy business based on agricultural feedstock provides a means to achieve government objectives of rural economic development.

Structured as a limited partnership Chin Lakes will integrate BFuel's renewable energy expertise with regional farmer investment and/or supply agreements with private equity investor participation under an operation and distribution model designed to serve southern Albertans with viable affordable renewable energy alternatives. This feasibility study serves as an overview of the current plans and operational feasibilities of the proposed Chin Lakes Facility, Key highlights of the Chin Lakes facility include:

- Capacity of 40 million litres per year
- State-of-the-art biodiesel production technology
- \$30 million capital cost Investment
- Regional Retail Biodiesel Distribution
- Regional Community Farmer Feedstock Support
- Regional Employment

The prices of agricultural commodities are going to affect substantially the feasibility of this sector. The high prices of petroleum and the outlook of the oil market appear to be favourable to the development of biodiesel. However, historically the price of biodiesel has correlated closely to the price of petroleum diesel. We believe that once the required minimum renewable blending standards have taken effect, the pricing of biodiesel will be less correlated to petroleum diesel price. The financial projections are extremely favourable, but must be interpreted with caution.

Waste to Energy Treatment Alternatives

In September 2007, a study was initiated by SAAEP to investigate energy recovery from wastes in Southwest and South-Central Alberta. The objectives of the study were to:

- Determine current situation with respect to waste management
- Investigate three identified energy recovery processes
- Review sizing and operational consideration

Lethbridge based Trimark Engineering was retained to conduct the energy recovery study. Information was obtained from waste generators, waste management operators and transporters and technology vendors. Data was also obtained from government sources at the municipal, provincial and federal levels.

Key findings of this report are:

- Most solid wastes generated in the region are land-filled as final disposal.
- Agricultural production and secondary processing operations produce high volumes of organic residuals. Most of these organic residuals are land applied for disposal and to enrich soil.
- The composition of the land-filled solid wastes includes materials that may be recovered, reused, composted or used as feedstock for energy recovery.
- The composition of the agricultural residuals includes materials that may be used as feedstock for energy recovery.
- Despite waste reduction initiatives, the quantity of solid waste entering the waste management system continues to increase year after year.
- Based on current trends, municipal costs associated with waste management will increase.
- The assessment of the total cost of waste management should consider factors including environmental, health and social costs.
- Implementation of material recovery, composting and energy recovery processes has the potential to reduce region landfill requirements by 80 to 90%.
- Energy recovery processes may recover up to 500 kWh of electricity per tonne of waste processed. The process may generate an equivalent amount of heat energy, which may be recovered.

Opportunity Identification for the Bio-Fuel Industry

This report defines the bio-fuels cluster for bio-ethanol and bio-diesel plants in the Southern Alberta Alternative Energy Partnership (SAAEP) Region. Cluster components include plant engineering, design and structural construction, process equipment manufacture, control system design and installation, plant production inputs and operations, transportation and distribution, and on-going plant supply and service, and maintenance.

A GAP analysis showed that the SAAEP region has considerable capability and capacity for plant design, engineering and construction, process control system design, agricultural production inputs, and on-going plant supply and services.

Cluster deficiencies were found to be a lack of bio-diesel process equipment manufacture in the region; methanol production for bio-diesel production inputs; and various other smaller inputs such as chemical catalyst supply for bio-diesel production, and enzyme and yeast supply for bio-ethanol production. Other deficiencies include a possible need to add transport capacity in terms of grain super-B equipment, and possibly petroleum grade (methanol) bulk chemical liquid tank trailers.

Major bio-fuels business opportunities for the SAAEP region include:

- Attraction of a bio-diesel process equipment manufacturer, and/or
- Local manufacturing under license of bio-diesel process equipment
- Local design, engineering and structural construction of plants
- Local design of process control systems
- Transportation related opportunities, particularly for inbound wheat and canola

Strategic Communication Plan

The driving purpose of the Southern Alberta Alternative Energy Partnership (SAAEP) is to facilitate the development of alternative energy systems and business opportunities in southern Alberta. Partners forming the SAAEP include Economic Development Lethbridge, SouthGrow Regional Initiative and Alberta Southwest Regional Alliance. In sum, 37 southern Alberta municipalities are represented, sharing a common goal to develop opportunities in alternative energy, specifically solar/geothermal; wind and bio-energy (including bio-fuels, bio-mass and waste to energy.)

The overarching purpose of this strategic communications plan is to assist the SAAEP in building stakeholder awareness and enhancing the reputation of the southern Alberta region as a destination for alternative energy development. This plan will serve to:

- Assist in continually refining SAAEP strategies and ensure relevance and effectiveness;
- Provide access to more complete and accurate information;
- Generate fresh and innovative ideas;
- Create economies of scale in terms of people and financial resources;
- Provide a platform for generating awareness of the SAAEP and its work;
- Facilitate collaboration among and between stakeholders and the SAAEP.

Aligned with this purpose and the overall SAAEP strategy, themes of the four key communications goals guiding this plan encompass: relationship building; reputation management; knowledge and learning and leadership.

On the whole, the communication environment is very positive both internally and externally and is highlighted by considerable interest in alternative energy development by key stakeholders and ample opportunity to capitalize on support. Numerous options for stakeholder communication and liaison and finite resources (people and time) could present some challenges to fully realizing defined goals.

The region offers a robust number of competitive advantages as a platform for communication, including abundant natural resources to support alternative energy development, excellent transportation access and an overall attractive cost of living.

Critical success factors in communication encompass a need to: Capitalize on keen stakeholder interest in timely fashion; set priorities to optimize resources and impact; hone relationships and networks that support long-term goals; and continue to build the reputation of the region as an attractive business destination for alternative energy development.

A positioning statement to anchor communication planning is presented as: “Southern Alberta is a global leader in alternative energy production and manufacturing” and gives way to key strategic directions in communication that follow:

- Profile the SAAEP leadership role in facilitating regional industry development;
- Focus on opportunities to communicate with prioritized stakeholder groups and add optimally targeted value to industry development;
- Enhance scope of reputation by facilitating a network of strong relationships that are regional, national and international in scope.

The focus of stakeholder communication planning includes nine target groups

- Mayors, Reeves and Chief Administrative Officers in SAAEP municipalities;
- The Government of Alberta;
- The Government of Canada;
- Participants of the Green Growth Consultation Process;
- Provincial and National Alternative Energy Associations;
- Regionally-Based Community Stakeholders;
- Local Alternative Energy Industry Leaders;
- International Industry Leaders;
- Media (local, national and international.)

Aligned with the key strategic directions, the plan provides significant detail in suggesting key messages to stakeholders as well as offering overall communication and reputation building tactics for consideration. Stakeholder profiles and audience-specific messages and tactics are included for each of the defined stakeholder groups.

A framework for creating an integrated tactics overview along with considerations in measuring and evaluating selected tactics is also provided.