



# Opportunity Identification for the Bio-fuel Industry In Southwest and South-central Alberta

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Economic Development  
  
**LETHBRIDGE**



### **Executive Summary**

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

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## **Introduction and Background**

The Southern Alberta Alternative Energy Partnership (SAAEP) is a partnership of three economic development organizations which share common interests regarding alternative energy growth in southern Alberta. Representing 37 municipalities in the southwest and south-central region of the province, the partners are:

- Economic Development Lethbridge
- SouthGrow Regional Initiative
- Alberta Southwest Regional Alliance.

SAAEP commissioned this report for two reasons:

- To define the cluster of firms comprising the bio-fuel industry.
- To identify business opportunities arising from the establishment and presence of bio-fuel plants in the region.

Bio-fuel plants produce either bio-ethanol or bio-diesel used as fuel additives for purposes of reducing emissions. There are currently several proponents assessing locating bio-fuel plants in the SAAEP region, with one bio-diesel plant under construction and scheduled to commence production in the first half of 2008.

Bio-ethanol plants use wheat, rye and/or triticale and water as production inputs to a fermentation process with ethanol and brewers' mash as the outputs. Brewer's mash is sold mainly as animal feed. There are issues related to the disposition of the mash, as it has a limited shelf life. Successful bio-ethanol plants in Saskatchewan have either an integral feedlot component or are located next to a feedlot. In periods of low animal occupancy at feedlots there is a risk that the brewer's mash may have to be disposed of as a waste stream.

Bio-diesel plants can use vegetable oils, canola oil, recycled cooking oils or animal fats as inputs, along with methanol and a chemical catalyst. Process output is bio-diesel with crude glycerine as a by-product. Crude glycerine can be further refined for use in chemicals, nutraceuticals, body care products and a range of bio-products such as bio-plastics or bio-lubricants. If the plant uses canola oil and crushes its own seeds, canola meal will also be a byproduct. Canola meal can be sold as animal feed or can be further upgraded by extracting the protein content.

Four proponents are currently considering locating bio-fuel plants in the SAAEP region: three are bio-diesel, and one is bio-ethanol. In the construction phase, the total local economic impact of these plants could exceed \$100. The bio-ethanol plant, planned by AG Fuel of Vulcan, has a planned output of 150 million litres per year. Major issues for this plant is availability and license for water, and being located on a major power line.

The bio-diesel plant promoted by Refuel Bio-products Corporation of Coalhurst, will use recycled food-grade canola oil collected from regional restaurants as feedstock. It will need to install oil filtration equipment to ensure that all impurities and traces of food are removed from the recycled oil prior to use in the production process. This plant will have an annual estimated output of 1.5 million litres.

BFuel Canada Corp will use canola seeds and include a crushing plant. The plant will produce approximately 40 million litres of bio-diesel annually along with 4,500 tonnes of glycerine, and 62,000 tonnes of canola meal by-products. Current plans are that most of the glycerine (with a 99.5% - 99.7% purity rating) will be taken by an associate company, and the rest will be exported. The canola meal will be marketed through a Saskatchewan-based company.

Kyoto Fuel's bio-diesel plant is expected to start production of 33 million litres of bio-diesel per annum in the first half of 2008. The plant will use materials from food and animal processing plants in the region as feedstock, along with a limited amount of canola oil. The company would like to supply the glycerine by-product (with a 99.5% - 99.7% purity) to the bio-plastics sector in the USA, and eventually to a developing bio-plastics sector in Canada and Alberta. It is anticipated that the canola meal by-product will also be exported to the USA.

## **1. Cluster Industries in the Bio-Fuel Industry**

The bio-fuels industry comprises a wide variety of firms within its cluster. This chapter identifies the industry cluster, and provides a GAP analysis to identify cluster components not currently available in the SAAEP region.

### **1.1 Identification of Bio-Fuel Industry Cluster Components**

The following approach was used to describe the bio-fuel cluster and its further developments in the SAAEP region:

- The bio-fuel plant itself was assumed to be the centre of the cluster.
- Cluster firms were identified for plant construction and plant operations phases. In the plant operations phase, a continuum of vertical upstream and downstream firms contributing to/ supplying plant production inputs and firms being involved in the plant outputs were identified.
- The supplies and services component of the clusters were identified.

### **1.2 Plant Construction Cluster Firms**

In the plant construction phase, the following types of firms were identified as belonging to the bio-fuels cluster:

#### **1.2.1 Plant Structural Engineering and Construction Component**

The following types of firms were identified as belonging to this component of the cluster:

- Architects/engineers
- Environmental/soil testing firms
- General contractors
- All construction sub-trades and their suppliers, such as e.g. electrical, plumbing, mechanical, welding, painting, dry-walling etc
- Site preparation and excavation firms
- Paving firms
- Concrete suppliers
- Metal fabrication firms
- Steel and materials suppliers
- HVAC (heating, ventilation, air conditioning) suppliers and installers
- Flooring suppliers
- Doors and windows Suppliers
- Office furniture
- Office equipment and supplies, including computer equipment

### **1.2.2 Process Equipment and Process Control Systems**

The following types of firms were identified as belonging to this component of the cluster:

- Production process owners/vendors
- Process equipment manufacturers
- Production process engineering firms
- Process control system hardware suppliers
- Manufacturers of metal and plastic tanks
- Pipe manufacturers and suppliers

Process equipment manufacturers/fabricators are often also the process owners/vendors or hold process patents or licenses.

Manufacturers of tanks and bins are required to produce storage equipment, and pipe manufacturers will supply piping to carry production inputs into the plant from storage and production outputs out of the plant to storage.

#### Bio-ethanol Process Equipment

Process equipment includes:

- Hammer mills
- Agitated mixing tanks
- Pressurized, continuous jet “cooking” tank
- Mash coolers

#### Bio-diesel Process Equipment

Process equipment includes:

- Agitated reactors
- Stainless steel piping
- Centrifuges
- Distillation columns
- Washers and dryers
- Settlers
- Storage tanks
- Positive displacement pumps

### **1.3 Plant Operations Cluster Firms**

#### **1.3.1 Upstream Component of the Cluster**

The following types of firms were identified as members of this component:

- Production Input Suppliers – bio-diesel
  - Canola growers and acreage
  - Southern Alberta restaurants - recycled canola oil
  - Local food processing plants - mixed feedstocks
  - Animal processing plants in the region - animal fats
  - Methanol supplier
  - Chemical catalyst supplier – sodium hydroxide or sodium methalate.
  
- Production Input Suppliers – bio-ethanol
  - Wheat growers and acreage
  - Water suppliers
  - Enzyme suppliers
  - Yeast suppliers
  - Gasoline suppliers - for denaturing
  - Power and natural gas suppliers.

For bio-ethanol, water and utilities have been included because they are required in substantial quantities in the production process.

It could also be argued that fertilizer manufacturers/suppliers and agricultural equipment manufacturers/suppliers should be part of the upstream cluster component. However, as these already have a substantial presence in the SAAEP region, they are not critical to bio-fuels cluster or plant development in the region.

#### **1.3.2 Product Transportation and Distribution Cluster Firms**

The following types of firms were identified as members of this component:

- Inbound Transport
  - Liquid methanol transport for bio-diesel production (liquid haulers)
  - Dry canola (grain) transport for bio-diesel production (grain hauler)
  - Dry wheat (grain) transport for bio-ethanol production (grain hauler)
  
- Outbound Transport
  - Bio-diesel: transported in a liquid carrier.
  - Bio-ethanol: transported in a liquid carrier.
  - Canola meal pellets: transported in a dry van carrier or grain super-B train for bulk.
  - Distiller’s mash: moved in hopper-bottom equipment or in drums by dry vans.



## **1.4 GAP Analysis: Plant Construction, Operation, and Product Transport**

### **1.4.1 Plant Construction**

#### Plant Engineering, Design and Structural Construction

The SAAEP Region is well served with engineering, permitting, site preparation and structural construction of the plants.

#### Process Equipment

At present, there are no bio-diesel process owners/vendors, or bio-diesel process equipment manufacturer/fabricators in the region.

The SAAEP region is well served with metal fabricators capable of producing storage tanks and bins. Both Kyoto Fuels Corp and BFuel Canada have indicated that they are/will be using a local Taber-based fabricator to manufacture storage tanks.

These same metal fabricators, in conjunction with local machine shops, should have the capability to manufacture most of the production equipment for bio-ethanol plants, with the possible exception of hammer mills, separation screw presses and distillation columns. This is not proprietary technology.

#### Process Control Systems

No gaps have been identified for the process control system component of the plants. Local engineering firms have process control system engineering design and associated software production. There are large national distributors in the region that can supply gauges, measuring devices, instruments, hardware and other components used in process control systems.

### **1.4.2 Plant Operations**

The following gaps have been identified in the SAAEP region:

- Methanol for bio-diesel. The closest supplier is Methanex located in Medicine Hat. Attracting a methanol plant would have a very low probability of success.
- Chemical catalysts for bio-diesel are highly specialized chemicals. Used in small quantities, they are most likely sourced out of Montreal. Firms are international in scope, with limited strategic locations.
- There are no known suppliers of enzymes for bio-ethanol production input.
- There are no known yeast suppliers for bio-ethanol production input.

- Water for bio-ethanol production. Substantial amounts of water will be required, and this is a substantial issue. Licensing may be a problem according to AG Fuel. This is not so much a gap, but rather availability of water is a critical component for plant feasibility.
- Electrical power for bio-ethanol production. Plant needs access to industrial three-phase power line, which dictates where it can be located. This is not so much a gap, but rather is a critical component for plant feasibility.
- Natural gas volume dictates location on main feeder line. This is not so much a gap, but rather is a critical component for plant feasibility.

### **1.4.3 Product Transport and Distribution**

The following gaps have been identified:

- There are no known bulk liquid chemicals (methanol input, bio-diesel and bio-ethanol output) haulers located in the region. However, the region has numerous water haulers which may be able to add equipment suitable for methanol hauling.
- Plant owners have identified a likely need for additional grain hauling equipment, including grain super-B equipment for inbound grain hauling outbound canola meal in bulk, and possibly dry van equipment for any bagged canola meal.
- There could be a need for hopper bottom bulk equipment for outbound local transport of brewer's mash between bio-ethanol plant(s) and feedlots.

## **2. Bio-Fuel Industry Support Services**

### **2.1 Support Services Cluster Components**

The types of on-going support services required by bio-ethanol and bio-diesel plants are essentially the same. The following types of firms were identified as members of this component:

- Legal Services
- Accounting Services
- Janitorial Services
- On-going office equipment and supplies
- IT Services
- Facility Maintenance and Repair
  - Office Maintenance
  - Plant Maintenance
  - Storage & Piping Maintenance
  - Process Equipment Maintenance
  - Process Control Maintenance
    - Software
    - Hardware and Instrumentation

### **2.2 GAP Analysis**

Maintenance of bio-diesel processing equipment may be the only component not present in the region. Some of the production equipment is known to require substantial maintenance, and in many cases by the manufacturers/installers. It is possible that a local metals company could be certified to undertake the maintenance.

Existing local metal fabricating, machining and millwright businesses are available to maintain bio-ethanol production equipment.

Normal office-related IT services are available in the SAAEP region.

If a local engineering firm were to provide the process control system design and software, and if process control instrumentation and hardware were sourced locally, the servicing functions for process control could be undertaken wholly by local firms.

If the original process control system and software design were supplied from outside the region, then some of this maintenance may be left with the original designer. Most parts and hardware for maintenance could be supplied by local industrial distributors. Construction contractors and sub-trades these are ubiquitous throughout the region.

### **3. Business Opportunities for the SAAEP Region**

This study has identified the following business opportunities:

#### **3.1 Attraction of a Bio-diesel Process Equipment Manufacturer.**

##### Description

Attract a bio-diesel process equipment manufacturer currently based in Europe to the SAAEP region to supply planned and future bio-diesel plants in Canada and USA

##### Environmental Scan

Bio-diesel production in Canada is in its infancy. Canada has three large-scale bio-diesel plants:

1. Biox Corp. operates a 16 million litres/year plant in Hamilton, Ontario.
2. Rothsay Bio-diesel operates a 35 million litres/year plant in Quebec.
3. Canadian Green Fuels operate a 40 million litres/year plant in Regina, Saskatchewan.

Milligan Bio-Tech of Foam Lake, Saskatchewan operates a smaller scale facility. A 20 million litres/year plant owned by Western Bio-diesel Inc. is scheduled to commence production in Aldersyde, Alberta in early 2008, and Kyoto Fuels' 20 million litre plant in Lethbridge, Alberta is also scheduled to commence production in 2008.

In December 2006, the Government of Canada announced its intent to develop federal regulations on renewable fuel. These proposed regulations require 5 percent renewable fuel content based on the gasoline pool by 2010, and 2 percent renewable fuel content in diesel and heating oil by 2012. These new regulations are expected to require close to 3 billion litres of renewable fuels by 2012.

In support of the regulations, the Government is implementing 3 programs:

1. Producers Initiative (BOPI): Assistance for farmers to seize new opportunities in bio-fuels production. Led by Agriculture and Agri-Foods Canada (AAFC).
2. NextGen Bio-fuels Fund™: Support for establishing large-scale demonstration facilities for the production of next-generation bio-fuels. Managed by Sustainable Development Technology Canada (SDTC) which is an arm's-length foundation created by the Government of Canada.
3. ecoENERGY for Bio-fuels: Operating incentives to stimulate domestic bio-fuels production – led by Natural Resources Canada (NRCan).

The ecoENERGY for Bio-fuels program supports the production of renewable alternatives to gasoline and diesel and encourages the development of a competitive domestic industry for renewable fuels. The program provides an operating incentive to facilities that produce renewable alternatives to gasoline and diesel in Canada, and will invest up to \$1.5 billion over nine years in support of bio-fuels production in Canada. Recipients will be entitled to receive incentives for no more than seven (7) consecutive years.

The ecoENERGY for Bio-fuels program runs from April 1, 2008 to March 31, 2017. Natural Resources Canada (NRCan) is administering this program. The initiative will provide operating incentives to producers of renewable alternatives to gasoline and diesel based on production levels and other factors. It will make investment in production facilities more attractive by partially offsetting the risk associated with fluctuating feedstock and fuel prices. For the first three years, incentive rates will be up to \$0.10/litre (L) for renewable alternatives to gasoline and up to \$0.20/L for renewable alternatives to diesel. After three years these maximum rates will decline.

Alberta's nine-point bio-energy plan was announced in 2006, committing funding of \$239 million over five years to assist in the development of a sustainable bio-energy industry in the province. Programs in place through the plan are:

- Commercialization/Market Development Program: Providing \$24 million through to March 31, 2009, this program will develop Alberta's bio-diesel, biogas and bio-ethanol production capacity in response to market opportunities.
- The Bio-energy Producer Credit Program: Providing \$209 million through to March 31, 2011, this will encourage production and incorporation of bio-energy products within the marketplace. The minimum credit is equal to Alberta's Fuel Tax, which is currently 9¢ per litre.
- The Bio-industry Infrastructure Development Program: Providing \$6 million through to March 31, 2009 this program will leverage industry/investor/municipal funds to develop and expand the distribution infrastructure to connect Alberta produced bio-diesel, bio-ethanol and biogas to the marketplace.

For process equipment purposes, bio-diesel production in Canada is based primarily on canola oil, and to a lesser extent recycled cooking oils and animal fats as feedstocks. Canola is used mainly in the production of margarine and cooking oil, and as animal feed.

In the US, soy oil is the predominant feedstock for bio-diesel production. With the rapid increase in production capacity, a large portion of US soy oil production could be required to meet demand, with corresponding upward pressure on soy oil prices and foods containing soy oil. This could create a substantial opportunity for North American production to be located in Canada and be based on canola oil.

According to *Bio-diesel Magazine*, in the spring of 2007 there was approximately 3.2 billion litres of US and Canada bio-diesel production capacity on line with another 4.9 billion litres under construction. The magazine also reports that there were 94 serious bio-diesel projects in the planning stages in North America in 2007, with a reported planned total annual capacity of 8.3 billion litres. Of these, 55 had selected a production process, and two had chosen a process vendor located outside of North America.

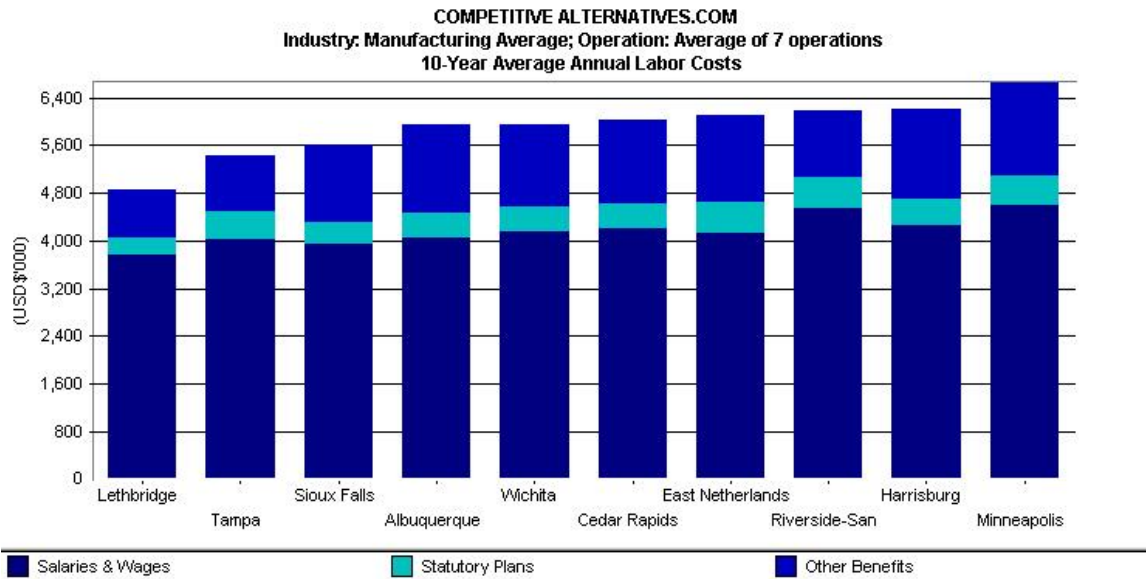
#### Advantages of Locating in the SAAEP Region

The main advantages of locating manufacture of bio-diesel processing equipment in the SAAEP region are:

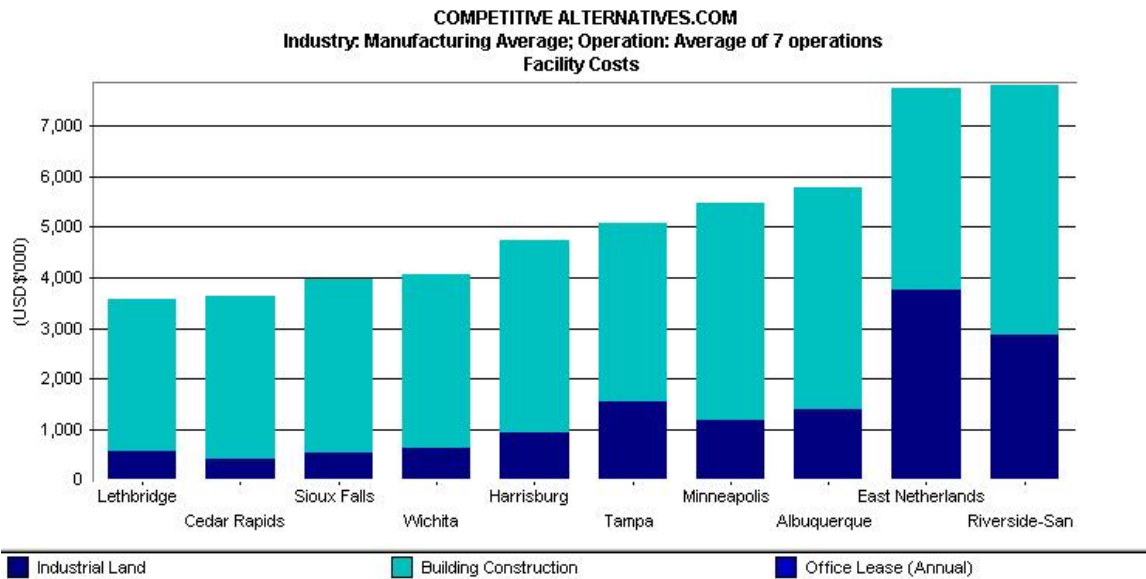
- Competitive manufacturing costs
- Superior transportation access and services to all regions of North America.
- Well-developed engineering, metal fabrication and machining sectors to support a process equipment manufacturing plant

#### Competitive Manufacturing Costs

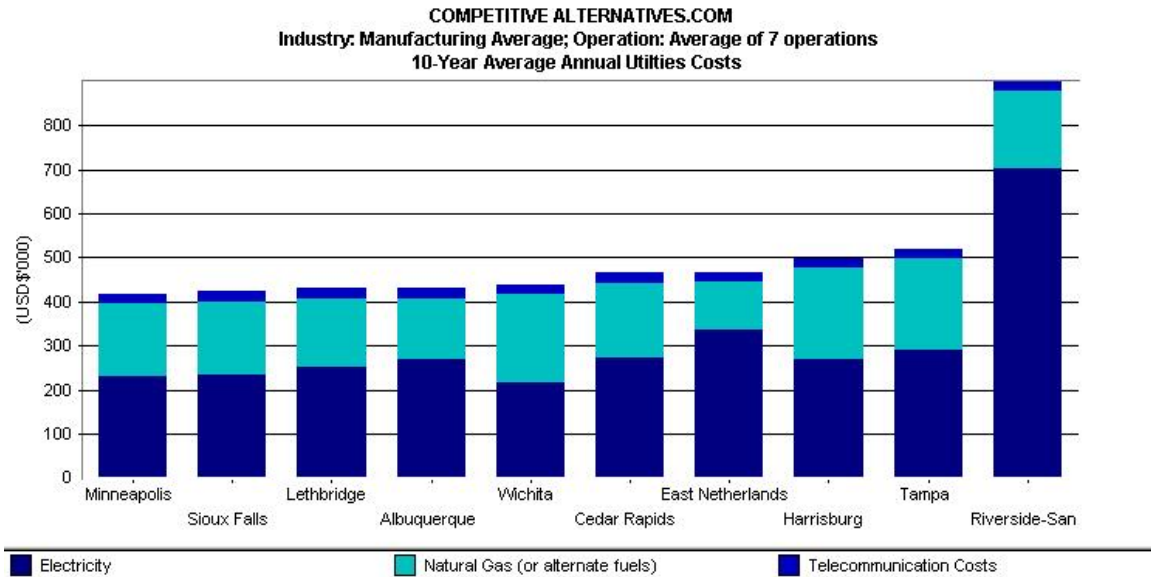
KPMG provides international comparisons of costs for a number of cities in Europe and North America. The charts below compare Lethbridge with locations in Europe (East Netherlands) and in US states (close to) where bio-diesel processing equipment is being manufactured.



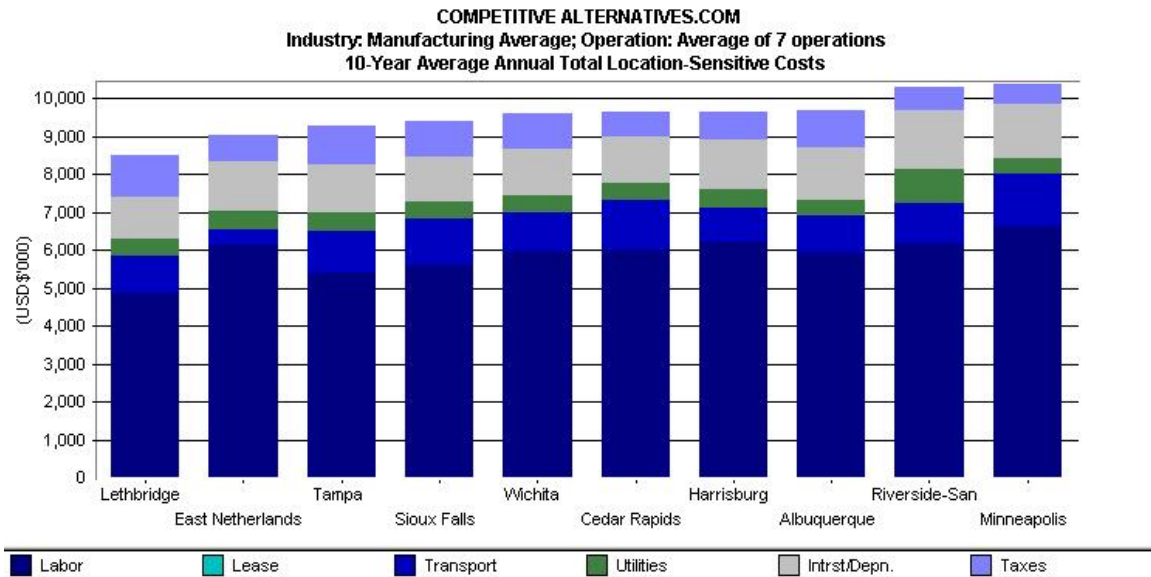
**Figure 1: Labour Cost Comparison**



**Figure 2: Facility Cost Comparison**



**Figure 3: Utilities Cost Comparison**



**Figure 4: Total Location Cost Comparison**

Source: KPMG



Lethbridge has the lowest labour costs; the lowest facility construction costs; the third-lowest utility costs (although there is no real difference between the five lowest locations); and the lowest overall annual location-sensitive manufacturing costs. Clearly, the SAAEP region can promote itself as a low-cost region with regard to manufacturing costs.

#### Superior Transportation Access and Services to All Regions of North America

The SAAEP Region lies directly on the Canamex Highway Corridor, running from Grande Prairie, Alberta to the Mexican border. Along this corridor other interstate highways can be accessed for unfettered highway access to all corners of North America. A large number of motor carriers who serve all of the lower 48 US states and all of the Canadian provinces are located in the SAAEP region.

The SAAEP region has direct access to rail service through CP Rail's trans-Canadian network. For rail service to the lower 48 US states, CP Rail connects with the BNSF rail system at the Canada/US border just south of Lethbridge. A substantial amount of rail traffic uses this link on a daily basis.

The SAAEP region has well-developed engineering, metal fabrication and machining sectors to support a process equipment manufacturing plant.

The SAAEP region houses a number of engineering firms covering virtually all fields including agricultural/bio-industry process design. There are a number of metal fabricators with expertise in stainless steel and pressure welding as it relates to agricultural, food processing and other processing equipment, and stainless steel pipe expertise is also available in the region. High quality machine shops that can support a bio-diesel processing equipment manufacturing facility are also located in the region.

#### Market Potential

In 2007, there were 94 new plants in the planning stages in North America identified by *Bio-diesel Magazine* with a planned annual production capacity of 2.2 billion gallons or 8.3 billion litres. Of these, some 39 plants had not declared or decided upon the process technology (and hence equipment) they would use. The estimated capacity of these 39 plants will be 928 million US gallons, or approximately 3.5 billion litres.

There were two Canadian plants on the *Bio-diesel Magazine* list with undeclared process technology:

- Canadian Bio-fuels Corp. with a 225 million litres/year proposed plant at Redwater/Fort Saskatchewan, Alberta with an estimated capital cost of \$90 million. Possible start-up could be at the end of 2008. Feedstock will be canola oil.

- Green Machine Bio-fuels of Delta, British Columbia with a planned annual capacity of one million litres.

Known Alberta plants in the planning stages not identified by *Bio-diesel Magazine* include:

- BFuel Canada Corp's planned 40 million litre bio-diesel plant in Lethbridge Alberta.
- Refuel Bio-products' planned 1.5 million litre plant at Coalhurst, Alberta.
- Canadian Green Fuels/Cansource Bio-fuels' planned 40 million litre plant at Mayerthorpe, Alberta.
- Dominion Energy LLC et al's planned 378 million litre plant in central Alberta with an estimated capital cost of \$400 million. This plant would also produce bio-ethanol and canola oil and would be the largest bio-fuels complex in North America.

Installation costs vary depending upon technology used, but is estimated to amount to approximately \$1.00 per US gallon (3.8 litres) of annual capacity, with a slight decline thereafter as economies of scale are realized.

The total estimated capital costs for the 39 plants in the planning stages in 2007 which have not yet selected a process, plus the known Alberta plants being planned, amounts to an estimated \$1.36 billion

On the basis that process equipment accounts for approximately 33% of total capital costs, the value of process equipment for these plants now in the planning stages amounts to an estimated \$450 million. This can be defined as the potential current market for a bio-diesel process equipment manufacturer located in the SAAEP Region.

#### Target Firms to Take Advantage of this Business Opportunity

This is an ideal business opportunity for bio-diesel process equipment manufacturers located outside of North America. A presence by a European manufacturer in the SAAEP region would result in considerably lower costs overall, including transportation costs, and would greatly improve their ability to market in North America.

Following is a list of European manufacturers that could be targeted:

- BDI - Bio-diesel International AG of Austria. BDI-Bio-diesel International is being considered by BFuels and has already been to Lethbridge.

- Energea Umwelttechnologie GmbH of Austria. Energea has been selected for one of the projects planned in the USA.
- Desmet Ballestra of Italy. Desmet Ballestra has been selected for a US project and a Canadian project.

#### Next Steps

- Contact local metal fabricators, machine shops, and steel and pipe shops to communicate the opportunity and SAAEP initiative.
- Determine the level of support and interest of these companies to participate individually or as a consortium.
- In conjunction with the Province of Alberta, and Canadian government investment personnel, present SAAEP initiative and business opportunities to Commercial Investment Officers in Europe.
- Contact Alberta Employment, Immigration and Industry investment officials to seek cooperation and assistance to determine Ministerial and department missions to the Europe in order to ensure contact with, and attraction of, a bio-diesel process equipment manufacturer to the SAAEP region is a priority.
- Ensure a representative of SAAEP is part of any delegation/mission to Europe.
- Contact Canada Investment Officials to ensure this business opportunity is included for presentation by commercial officers in the designated countries, and to include a SAAEP representative on trade and investment missions by Federal Ministers and department personnel.
- Prepare a prioritized list of Companies in Europe. Contact should be made with the Canadian Trade Commissioner in the area in order for them to assist in determining the best method of contact, i.e. through Canada Commercial Officers, through Canadian/Alberta Ministerial/department missions or SAAEP representative direct visitations. Assistance can be sought through the Canadian Embassies, Consulate General, or Consulate offices in the various EU and U.S. cities for the meeting arrangements with the companies.

### **3.2 Manufacture of Bio-diesel Process Equipment Under License**

#### Description of Opportunity

- Local metal fabrication firms or a consortium of local metal fabricators, machine shops and pipe suppliers could manufacture bio-diesel process equipment under
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- license. Local manufacturers would have to demonstrate competencies and ability to obtain necessary ISO certifications.
- Target firms would include a European manufacturer or a US process technology company that contracts out its manufacturing.
- The local licensed manufacturer would supply planned and future bio-diesel plants in Canada and USA.

### Environmental Scan

The environmental scan in Canada for manufacture of bio-diesel process equipment under license is the same as for manufacture of bio-diesel process equipment. (See page 11.)

US process technology companies tend to be involved mainly in the region in which they are located. By licensing the manufacture of the equipment used for their specific process technology to a firm or consortium of firms in the SAAEP Region, an eastern US based firm can greatly expand its market reach into western USA and western Canada.

The total estimated capital costs of US planned plants west of the Mississippi River which have not yet chosen a process technology, and the western Canadian plants being planned, amount to some \$503 million. On the basis of 33% being for process equipment, the potential value for a SAAEP region firm or consortium making a manufacturing under license agreement with an eastern US-based process technology firm amounts to approximately \$166 million.

### **3.3 Bio-fuel Plant Construction by Local Firms**

#### Description

There is opportunity for local engineering firms, general contractors and sub-trades, and site preparation firms to become involved in and undertake the structural planning, permitting and construction of bio-fuel plants in the SAAEP region.

Target firms include:

- Engineering and architectural plant/facilities design
- Environmental permitting process/EIA preparation (if required)
- Site soils testing and other environmental testing
- Site preparation, excavation and foundations
- Plant construction
- Engineering management
- General contractor
- All construction sub-trades

- HVAC equipment and installation
- Paving and concrete
- Construction- related supplies

### Environmental Scan

Firms in the SAAEP region have considerable capability in structural plant design, permitting, engineering, site preparation, and construction. All the expertise exists to have the plants constructed by SAAEP region local firms

### Market Potential

Initially, the market potential is the construction of three plants by local firms; those of BioFuels Canada Corp, AG Fuel and Refuel Bio-products Corporation. Firm cost estimates are only available for the BFuel plant at this point. The structural component of this plant alone is estimated to cost approximately \$13 million, with a total economic impact in the SAAEP region of \$26 million if local firms were used.

If local firms are successful in construction the SAAEP region plants, they will gain experience and expertise that will allow them to bid on constructing other bio-fuel plants throughout western Canada, including those in the planning stages in Alberta. In effect, it would put them in a position whereby they can start to export their services outside the SAAEP region.

### Next Steps

A commitment should be sought from the plant owners that local firms will be allowed to bid on the site preparation, permitting and structural construction of the plants.

Once a commitment has been received, applicable businesses in the SAAEP member jurisdictions could be made aware of the opportunity through a mail-out or similar communication.

The Lethbridge Construction Association could be asked to notify its members.

Local information sessions should be arranged where plant owners are present to advise applicable local businesses about the opportunity, details of the anticipated bid/tender process, time lines, deadlines, tender documents, etc. It may be advisable for the SAAEP region to contract with a firm or individual who is knowledgeable about bio-fuel plants and their construction – to organize/run the information sessions.

SAAEP members should notify applicable firms in their jurisdictions when the various tenders are issued by the plant owners.

### **3.4 Local Design and Supply of Process Control Equipment and Software.**

#### Description

There is opportunity for local engineering firms to undertake design of bio-fuel plants process control systems and associated software, and for local industrial suppliers to supply process control equipment, sensors and instruments.

Target firms include engineering firms with capability in process control system design and provision of control system software, and industrial suppliers of sensors, electronic measuring equipment and other process control equipment.

Process control equipment includes:

- Thermocouples for temperature control
- Electrical sensing devices such as strain gauges for pressure control
- Differential pressure meters for level controls
- Flow meters for flow control
- Remote control panels/stations

#### Environmental Scan

Engineering firms located in the SAAEP region have expertise and capability in the design of process control systems and production of associated software.

Industrial distributors located in the region can supply required hardware and equipment.

#### Market Potential

Initially, the market potential is for the process control systems of three plants by local firms; those of BFuels Canada Corp, AG Fuel and Refuel Bio-products Corporation. Firm cost estimates are only available for the BFuel plant at this point, whose process control system is estimated to cost approximately \$720,000. The total opportunity for all three plants is estimated to be at or near \$2.0 million.

If local engineering firms are successful in the design of process control systems and production of associated software for the SAAEP Region plants, they will gain experience and expertise that will allow them to bid on systems and software for bio-fuel plants throughout western Canada, including those in the planning stages in Alberta.

### Next Steps

- A commitment should be sought from the plant owners that local engineering firms and industrial distributors will be given an opportunity to bid on process control system design, software and equipment.
- Once a commitment has been received, applicable businesses in the SAAEP member jurisdictions could be made aware of the opportunity through a mail-out or similar communication.
- Local information sessions should be arranged where plant owners are present to advise applicable local businesses about the opportunity, details of the anticipated bid/tender process, time lines, deadlines, tender documents, etc. It may be advisable for the SAAEP Region to contract with a firm or individual who is knowledgeable about bio-fuel plants and their construction – to organize/run the information sessions.
- SAAEP members should notify applicable firms in their jurisdictions when the various tenders are issued by the plant owners.

### **3.5 Transportation of Dry Products for Bio-fuel Plants.**

#### Description

Transportation of dry products for planned bio-diesel plants in the SAAEP region presents an opportunity for motor carriers.

Target firms include current dry bulk and grain haulers.

#### Environmental Scan

Three of the four plants planned for the SAAEP region will require transportation of dry production inputs: canola seeds and wheat.

Since Kyoto Fuels, one of the planned plants, is owned in part by a local trucking firm, its inbound transportation requirements will probably be internalized and unavailable for bid. This leaves BFuels Canada Corp and AG Fuel to put their dry inbound transportation requirements up for bid.

#### Market Potential and Equipment Need

Based on estimated input needs to achieve planned output of bio-diesel and bio-ethanol, some 102,000 tonnes of canola and 34,000 tonnes of wheat are estimated to be required, for a total potential tonnage of 136,000 tonnes. Assuming that efficient Super-B train

equipment with a payload capacity of 43 tonnes will be used, 3,022 – 3,162 truckloads will be required.

It is assumed that an average of two trips per day can be made between the farm and the plant, and that the plant will be supplied five days a week for 50 weeks a year. On that basis, one piece of equipment can make (250 x 2) 500 trips/year, hauling 21,500, indicating that (136,000/21,500) 6.3 super-B trains will be required

### Financial Estimates

The current capital cost of a super-B train grain unit with hopper-bottom unload is approximately \$79,800. Assuming that all new trailer equipment will be acquired for these hauls, capital cost requirements will be a maximum of (\$79,800 x 6) approximately \$479,000.

If additional tractors are required, it is assumed that these will be leased for an annual cost of \$30,000 - \$36,000 each.

Alberta Agriculture and Food has published 2006 freight rates for super-B grain hauling in the Lethbridge region, excluding fuel surcharges. It is assumed that the rates have remained relatively constant. It is further assumed that all inputs will be sourced within a 60 mile radius of the plants. Alberta Agriculture and Food indicates that a rate for these hauls will be a flat \$8.00 per tonne. On that basis, total potential revenue for supplying both plants is estimated at approximately (136,000 x \$8.00) \$1.088 million annually, or about \$181,350 per super-B unit.

No detailed information is available to allow an estimate of operating costs. However, as each piece of equipment will travel an estimated maximum 60,000 miles per year (30,000 loaded miles plus 30,000 empty miles), this indicates that an operating cost structure of anything less than (\$181,360/60,000) \$3.02 per mile, including tractor lease costs and trailer depreciation, will result in a positive return.

### Outbound Transport of Canola Meal.

BFuels Canada Corp estimates it will have 62,000 tonnes available for outbound transport annually. The company has made arrangements with a Saskatoon-based firm to market this product. As destinations for product are not yet known, detailed transport requirement cannot be determined. It is probable, though, that the product will be transported in hopper-bottom bulk equipment, or bagged in dry vans.

### Next Steps

- A commitment should be sought from the plant owners that haulage of dry production inputs will be put up for bid in a public tender. This same commitment should be sought for the outbound canola meal.



- Members of SAAEP should ensure that the opportunities are well publicized to truckers in their communities.
- Members of SAAEP should ask the plant owners to notify them when the hauls go for tender in order that they can provide truckers in their communities with details such as dates, deadlines and contact information concerning the tenders.

### **3.6 Transportation of Liquid Production Inputs for Bio-diesel Plants.**

#### Description

Transportation of methanol inputs for planned bio-diesel plants in the SAAEP region presents a potential opportunity for motor carriers. Target firms include current bulk liquid haulers, including water haulers.

#### Environmental Scan

The three bio-diesel plants planned for the SAAEP region will require inbound transportation of methanol. This methanol will most likely be sourced from Methanex in Medicine Hat, the closest source of methanol. Methanol is approximately 12% of input and output, but is recycled and reused in the production process.

#### Market Potential and Equipment Needs

It is assumed that the plants will keep an inventory of methanol equal to the need for two weeks production. Based on annual production from the three plants of 75 million litres of bio-diesel, this will amount to a demand for ethanol of 300,000 litres.

A tank trailer super-B train rated for petroleum/methanol hauling can handle a methanol payload of approximately 50,000 litres of methanol. On this basis, the plants' annual needs can be covered by six trips, requiring maximum utilization of equipment on only six days per year.

The current capital cost of a tank trailer super-B train rated for petroleum/methanol is approximately \$180,000. On that basis, this would be an opportunity only for a carrier currently hauling petroleum/methanol, or who could obtain other traffic for the equipment. With proper cleaning of the equipment, the carrier could haul outbound bio-diesel. Because of the poor utilization of equipment to cover the annual needs, no meaningful operating costs can be developed.

#### Next Steps

- A commitment should be sought from the plant owners that haulage of methanol production input will be put up for bid in a public tender.

- Members of SAAEP should ensure that the opportunities are well publicized to truckers in their communities.
- Members of SAAEP should ask the plant owners to be notified when the hauls go for tender in order that they can provide truckers in their communities with details such as dates, deadlines and contact information concerning the tenders

#### 4. Municipal Gasoline and Diesel Fuel Consumption

The researchers requested municipal representatives in the SAAEP region to provide information about annual municipal gasoline diesel fuel consumption. Responses varied from providing detailed information, to estimates, to advising that information was not available and that staff/time was not available to search records to compile the information. Data obtained is shown in Figure 5.

**Table 5.1**  
**Current and 5-Year Forecast Municipal Fuel Consumption**  
**Southern Alberta Alternative Energy Partnership**  
**(in litres)**

Municipality	Gasoline		Diesel		Propane		Natural Gas	
	Current	Forecast	Current	Forecast	Current	Forecast	Current	Forecast
County of Warner	66,242	70,000	539,066	580,000	-	-	-	-
M.D of Crowsnest Pass	311,214	364,100	100,098	117,100	-	-	-	-
County of Lethbridge	100,000	100,000	900,000	900,000				
M.D. of Willow Creek	401		237,079					
M. D. of Vulcan	350,000		1,000,000					
M.D of Taber	490,000		515,000					
Cardston County	60,000		337,500					
<b>Sub-total</b>	<b>1,377,857</b>		<b>3,628,677</b>					
Town of Claresholm	23,877	23,877	47,897	47,897	4,062	4,062	9,565	9,565
Town of Taber	80,892		98,988		3,264			
Town of Cardston	50,655	50,655	25,161	25,161				
Town of Raymond	32,685	35,000	66,680	71,000			5,158	5,300
Town of Vulcan	61,748	64,898	923,680	970,796				
Town of Coaldale	50,000	51,500	34,800	35,850	3,000	3,100	-	-
Town of Ft. McLeod	32,000		6,635					
Town of Picture Butte	22,500		4,500					
Town of Milk River	Estimates \$20,000 purchases of fuel							
Town of Magrath	Estimates \$55,000 purchases of fuel							
<b>Sub-total</b>	<b>354,357</b>		<b>1,208,341</b>					
Village of Cowley	Estimates \$5,000 purchases of Fuel							
Village of Glenwood	Estimates \$5,000 purchases of Fuel							
Village of Coutts	Estimates \$5,000 purchases of Fuel							

### **Figure 5: SAAEP Municipalities Fuel Consumption**

The larger municipalities have operations or financial data regarding the annual consumption of gasoline and diesel fuel. Larger towns in the region have similar records. Smaller towns and villages purchase fuels from bulk distributors where payment is made by invoice and individual volume amounts are not recorded. Dollar amounts of smaller town purchases average \$20,000.00 to \$30,000.00 per year. The quoted prices for the last year are between \$0.79 and \$0.99/liter. Village purchases are minimal and average a maximum of \$5000.00 per year.

The forecast by volume is estimated to be a 5% to 10% increase over the next five years.

The seven reporting larger municipalities show purchases of 1,377,857 litres of gasoline and 3,628,677 litres of diesel fuel. This is an average of 196,836 litres of gasoline and 518,382 litres of diesel fuel per reporting municipality. By adding the average volume for one more municipality, the estimated totals are 1,574,693 litres of gasoline and 4,147,059 litres of diesel fuel.

Large towns reported purchases of 354,357 litres of gasoline and 1,208,341 litres of diesel fuel. Applying the average of 44,295 for gasoline and 151,043 litres for diesel fuel for the seven towns, the estimated total consumption is 664,422 litres for gasoline and 2,265,642 litres of diesel fuel.

Villages would contribute approximately 55,000 litres, mainly of diesel fuel.

Based on the above, the annual estimated total consumption of the three municipal levels in SAAEP for gasoline is 2,239,115 litres, and 6,467,701 litres of diesel fuel.

In terms of potential bio-diesel fuel uptake, this would represent:

- With a 5% blend: 323,500 litres of bio-diesel per year
- With a 10% blend: 646,800 litres of bio-diesel per year
- With a 15% blend: 970,155 litres of bio-diesel per year
- With a 20% blend: 1,293,500 litres of bio-diesel per year

### **Conclusions and Recommendations**

- The SAAEP region has a substantial bio-fuels industry cluster.
- A major missing cluster component is a list of local manufacturers of bio-diesel process equipment. This also represents a major opportunity for the region, as the presence of such a capability would position the region to supply bio-diesel process equipment throughout North America.
- The bio-fuels plants in the region will represent major new opportunities for the local motor carriers, both in terms of liquids and dry products haulage
- Participation in plant construction by the local engineering and construction sectors represents a major opportunity. If realized, it would position these sectors to participate in construction of future bio-fuel plants throughout Western Canada
- SAAEP should approve the business opportunity initiatives they wish to pursue on a priority basis, as rapid growth of, and new opportunities in, this industry can be expected
- SAAEP needs to initiate a plan of action to promote the business opportunities. This will include prioritizing companies to contact, determining time lines, designating personnel, and preparing budgets. A substantial number of the elements required are identified in conjunction with each of the business opportunities
- SAAEP needs to communication with local fabricators, machine shops and steel/pipe suppliers on a priority basis as soon as SAAEP approves the initiatives for the business opportunities because these firms will be involved in some form or another in the bio-fuel plants in the region.

APPENDIX A

Selected SAAEP Bio-fuel Cluster Firms

Environmental Products and Services  
Architects  
Engineering Firms  
Building Products and Concrete  
Metal Fabricators/Welders/Machine Shops  
Industrial Supplies/Instrumentation/Control Systems/Machinery  
Janitorial services  
Office Equipment, Furniture & Supplies

**SAAEP Environmental Products and Services**

Environmental Consultants

Aqua Terre Solutions Inc  
8- 2620 – 5 Ave North, Lethbridge  
Phone: 403 – 317 – 9161  
[www.aquaterre.ca](http://www.aquaterre.ca)

Environmental Assessment, hydro-geological investigations, ground water resources, regulatory approvals and permitting, site reclamation and remediation

Biantco Environmental Services Inc – project consultants, environmental & reclamation consulting  
Lethbridge

Phone: 403 – 327 – 8170  
toll free 1 – 888- 327- 8194

[www.biantco.com](http://www.biantco.com)

Site reclamation/pits & ponds, pre-post site assessments & phase I & phase II site assessments, reclamation certification applications, contamination plume sourcing, environmental drilling, core sampling

CJB Reclamation  
1710 – 31 Street North, Lethbridge  
Phone: 403 – 381 – 2144

Townsend Environmental Consulting  
Coleman  
Phone: 403 – 563 – 5063  
Fisheries consultant

Enviro-Ag Consulting Ltd  
3 – 4010 – 9 Ave North, Lethbridge  
Phone: 403 – 329 – 9216  
soils investigation, agro-environmental testing, NRCB permitting, livestock waste system design

Environmental Products & Services

Cox G W Construction Ltd  
1210 – 31 Street North, Lethbridge  
Phone: 403 – 328 – 1346

D B S Environmental  
1510 – 33 Street North, Lethbridge  
Phone: 403 – 328 – 4833

Clean Air Services

Lethbridge

Phone: 403 – 327 – 5997

Cell: 403 – 634- 1749

[www.cleanairservicesinc.com](http://www.cleanairservicesinc.com)

abatement – asbestos, lead, mold. PCB, paint, commercial, industrial, residential, mechanical  
demolition

Hi-Country Environmental

PO Box 73

Pincher Creek

Phone: 403 – 627 - 5429

Landmark Environmental Ltd.

411- 400 – 4 Ave South, Lethbridge

Phone: 403 – 331-3035

Enviro-Smart Inc

4617 – 24 Ave South, Lethbridge

Phone: 403 – 327 – 9378

[www.combustionresearch.com](http://www.combustionresearch.com)

overhead infrared systems, gas/propane/electric/vacuum/pressure. Commercial, industrial,  
agricultural. Residential electric heating panels

Bos Scapes Inc – land reclamation

1 km west of Coaldale on Hwy 3

Phone: 403 – 345-5607

BFI Canada – hazardous waste disposal

722 – 30 Street North, Lethbridge

Phone: 403 – 328 – 6355

Newalta Corporation – hazardous waste disposal

Raymond

Phone: 403 – 752 – 3213

Southern Vacuum Service

Phone: 403 – 327 -9447

Waste Management

Phone: 403 – 328 – 4448

WA Environmental Services Ltd

Lethbridge

Phone 403 – 381 – 8141

Underground storage tank removal, environmental site assessments, indoor air quality, site  
delineation & remediation, hazardous materials

**SAAEP Architect Firms**

Alvin Reinhard Fritz Architect Inc  
501 – 1 Ave South, Lethbridge  
Phone: 403 – 320 – 8100

Ferrari Westwood Architects  
234 – 13 Street North, Lethbridge  
Phone: 403 – 327 – 3113

Goss Architectural Design Group  
#1, 321A – 6 Streets, South, Lethbridge  
Phone: 403 – 329 – 1695

Hirano & Heaton Architects Ltd  
1510A – 31 Street North, Lethbridge  
Phone: 403 – 320 – 7007  
Architecture, Interior Design, historic restoration

Matthew J A Architect Ltd  
505 – 7 Street South, Lethbridge  
Phone: 403 – 320 – 2722

Savill Group Architecture  
104 – 5 Street South, Lethbridge  
Phone: 403 – 381 – 8888  
[www.savillarchitecture.com](http://www.savillarchitecture.com)

Templar Architecture and Design  
Lethbridge  
Phone: 403 – 345 – 2151

**SAAEP Engineering firms**

Trimark Engineering [www.trimarkeng.com](http://www.trimarkeng.com)  
In Lethbridge Food processing engineering  
#3 2620 5<sup>th</sup> Ave North, Lethbridge



Phone: 403 – 328 – 2910  
Agricultural, Food Processing and Bio-fuel Engineering

Mainstream Engineering  
2 Eagle Road North, Lethbridge  
Phone: 403- 328 – 1610  
Energy Management & Conservation Consultants

Bohnert Engineering Services Ltd  
320 Bridge Drive West, Lethbridge  
Phone: 403 – 381 - 6699  
Consulting Engineers – structural

EXH Engineering Services Ltd.  
Lethbridge  
Phone: 403 – 327 – 7746

Hasegawa Engineering  
1220 – 31 Street North, Lethbridge  
Phone: 403 – 328 – 2686  
Municipal, structural, environmental, project management, foundation design, surface water &  
ground water management

Igla-Desic Structures  
1221 2 Ave South, Lethbridge  
Phone: 403 – 394 – 0027

Martin Geomatic Consultants Ltd  
255 31 Street North, Lethbridge  
Phone: 403 – 329-0050  
Consulting engineers, land surveyors, municipal engineering, planning, land development consultants,  
real time GPS services

Stebnicki Robertson & Associates  
#412, 515 - 7 Street South, Lethbridge.  
Phone: 403 – 327 – 9433

WA Environmental Services Ltd  
Lethbridge  
Phone: 403 – 381 – 8141  
Underground storage tank removal, environmental site assessments, indoor air quality, site  
delineation & remediation, hazardous materials

Hantech Engineering Ltd  
2912 16 Ave North, Lethbridge  
Phone: 403 – 329-1134  
mechanical engineers

BCB Engineering Ltd

3 4010 9 Ave North, Lethbridge  
Phone: 403 – 320 - 4888  
structural engineers

AMEC Earth & Environmental  
1430B 31 Street, N  
Lethbridge, AB  
T1H-5J8, CAN  
Phone: (403) 327-7474  
Fax: (403) 328-7768  
Website: <http://www.amec.com>

AMEC Infrastructure  
210, 140 - 4th Avenue, South  
Lethbridge, AB  
T1H-5P7, CAN  
Phone: (403) 329-1467  
Fax: (403) 327-4938

Associated Engineering Alberta Ltd.

#300, 410 Stafford Drive, S.

Lethbridge, AB

T1J-2L2, CAN

Phone: (403) 329-1404

Fax: (403) 329-4745

Specializations:

Communications/Telecommunications

- Data Transmission Systems

- Fibre Optics

- Wireless Systems

Computer Science

- Client/Server

- Controls

- Internet/Intranet

- Process Automation

- Robotics

- Software Development

Electrical

- Alarm & Security Systems

- Building Systems

- Illumination & Lighting

- Motors & Generators

- Power Transmission & Distribution

Energy

- District Heating & Co-Generation

- Electric Power Generation - Hydroelectric

- Electric Power Generation - Nuclear

- Electric Power Generation - Thermal

- Electric Power Systems Analysis

- Energy Conservation

- Solar Energy

- Wind Energy

Environmental

- Environmental Assessments
- Environmental Site Assessments and Audits
- Groundwater Resources/Hydrogeology
- Industrial Hygiene and Safety
- Industrial Wastewater Treatment
- Laboratory and Treatability Studies
- Solid/Hazardous Waste Management
- Surface Water Resources

Forensic

- Electrical/Mechanical Failures
- Structural Failures

Geotechnical

- Soil & Rock Mechanics

Industrial

- Manufacturing Facilities
- Materials Handling
- Materials Storage
- Product & Process Design
- Prototyping & Product Development

Mechanical

- Fire Protection Systems
- Heating, Ventilation & A/C
- Plumbing & Piping

Municipal

- Infrastructure Rehabilitation
- Residuals Management
- Roads & Street
- Stormwater Management
- Wastewater Collection, Treatment & Disposal
- Wastewater Management
- Water Supply, Treatment & Distribution

Planning

- Drainage Studies
- Industrial Parks
- Land Use
- Site Plans
- Subdivision Plans
- Urban & Rural Design

Project Management

- Buildings
- Other
- Sewer & Water
- Transportation

Structural - Buildings

- Commercial
- Foundations
- Industrial
- Inspections & Investigations
- Institutional
- Lowrise
- Parking Facilities

Restoration & Repair  
Seismic Retrofit  
Structural - Other  
Bridges  
Bunkers & Silos  
Dams & Locks  
Tanks & Shells  
Towers  
Tunnels  
Surveying  
Aerial Photography: Photogrammetry/Photo Interpretation/Cartography  
Remote Sensing/Satellite Data Interpretation/Imagery  
Resource Surveys

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EBA Engineering Consultants Ltd.  
442 10 Street N  
Lethbridge, AB  
T1H-2C7, CAN  
Phone: (403) 329-9009  
Fax: (403) 328-8817  
Website: <http://www.eba.ca>  
Specializations:  
Energy  
Oil & Gas Pipelines  
Environmental  
Environmental Assessments  
Environmental Litigation Support  
Environmental Site Assessments and Audits  
Groundwater Resources/Hydrogeology  
Noise & Vibration  
Risk Assessment  
Solid/Hazardous Waste Management  
Surface Water Resources  
Underground Storage Tank Management  
Geotechnical  
Earth Structures  
Foundations  
Laboratory Testing  
Site Investigations  
Soil & Rock Mechanics  
Soil Stabilization  
Materials  
Analysis  
Design and Selection  
Quality Issues  
Specifications & Manuals  
Testing and Certification  
Municipal  
Infrastructure Rehabilitation  
Residuals Management  
Roads & Street

Storm water Management  
Planning  
    Drainage Studies  
    Land Use  
Project Management  
Research  
    Feasibility Studies  
    Technology Assessment  
Structural - Buildings  
    Foundations  
    Restoration & Repair  
    Topographic Surveys  
Temporary Works  
    Excavation Enclosures  
    Structural Shoring

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MPE Engineering Ltd.  
300, 714 - 5 Ave. South  
Lethbridge, AB  
T1J 0V1, CAN  
Phone: (403) 329-3442  
Fax: (403) 329-9354  
mpe-leth@telusplanet.net  
Website: <http://www.mpe.ca>  
Specializations:  
    Building Science  
        Inspections/Investigations  
        Roofing & Waterproofing  
        Technical Audits  
    Communications/Telecommunications  
        Wireless Systems  
    Computer Science  
        Client/Server  
        Controls  
        Process Automation  
        Software Development  
    Electrical  
        Alarm & Security Systems  
        Building Systems  
        Illumination & Lighting  
        Motors & Generators  
    Energy  
        District Heating & Co-Generation  
        Electric Power Generation - Hydroelectric  
        Wind Energy  
    Environmental  
        Surface Water Resources  
    Mechanical  
        Heating, Ventilation & A/C  
        Plumbing & Piping

Municipal

- Infrastructure Rehabilitation
- Roads & Street
- Stormwater Management
- Wastewater Collection, Treatment & Disposal
- Wastewater Management
- Water Supply, Treatment & Distribution

Planning

- Drainage Studies
- Site Plans
- Subdivision Plans

Project Management

- Buildings
- Other
- Sewer & Water

Structural - Buildings

- Commercial
- Foundations
- Industrial
- Inspections & Investigations
- Institutional
- Lowrise
- Restoration & Repair

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Ready Engineering Corporation

#3, 2620 - 5th Avenue N

Lethbridge, Alberta

T1H 6J6, Canada

Phone: (403) 327-2919

ready@readyengineering.com

Website: <http://www.readyengineering.com>

Firm Description:

Electrical and Control Systems Engineering

Specializations:

Communications/Telecommunications

- Data Transmission Systems
- Fibre Optics
- Wireless Systems

Computer Science

- Client/Server
- Computational Mechanics
- Controls
- Database Management
- Ergonomics
- Internet/Intranet
- Process Automation
- Robotics
- Software Development

Electrical

- Alarm & Security Systems
- Building Systems

- Energy Conservation
- Illumination & Lighting
- Motors & Generators
- Power Transmission & Distribution
- Energy
  - Coal Processing/Transportation
  - Cogeneration
  - District Heating & Co-Generation
  - Electric Power Generation - Hydroelectric
  - Electric Power Generation - Thermal
  - Electric Power Systems Analysis
  - Energy Conservation
  - Oil & Gas Production/Storage/Distribution
  - Oil & Gas Refineries/Processing Plants
  - Solar Energy
  - Steam Power Generation
- Industrial
  - Manufacturing Facilities
  - Materials Handling
  - Materials Storage
  - Plant Maintenance
  - Product & Process Design
  - Prototyping & Product Development
- Municipal
  - Wastewater Collection, Treatment & Disposal
  - Water Supply, Treatment & Distribution
- Occupational Health And Safety
  - Area Classifications - Electrical
- Petroleum
  - Oil & Gas Production/Storage/Distribution
- Project Management
  - Other
  - Telecommunications
  - Value Engineering
- Research
  - Feasibility Studies
  - Technology Assessment

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Stantec Consulting Ltd.

290, 220-4 Street S.

Lethbridge, AB

T1J 3L8, CAN

Phone: (403) 329-3344

Fax: (403) 328-0664

lethbridge@stantec.ca

Website: <http://www.stantec.com>

Specializations:

Agriculture

- Agricultural Engineering/Agrology

- Drainage Studies/Surveys

- Draining and Irrigation Systems/Networks

Food Processing and Storage  
Irrigation  
Land Drainage  
Rural Planning and Development  
Water and Soil Conservation Engineering

Building Science  
Architecture  
Building Code QP  
Capital Planning  
Fire Protection/Prevention  
Indoor Air Quality  
Inspections/Investigations  
Preliminary/Final Design  
Registered Code Agency  
Repair/Restoration  
Roofing & Waterproofing  
Technical Audits  
Walls & Cladding  
Windows

Chemical Engineering  
Desalination  
Food Processing  
Process Design

Communications/Telecommunications  
AM/FM Broadcasting  
Data Transmission Systems  
Fibre Optics  
Program Production Facilities  
Terrestrial & Satellite Links  
TV & CATV  
Wireless Systems

Computer Science  
Client/Server  
Controls  
Internet/Intranet  
Software Development

Electrical  
Alarm & Security Systems  
Building Codes QP  
Building Systems  
Energy Conservation  
Illumination & Lighting  
Motors & Generators  
Power Transmission & Distribution  
Registered Code Agency  
Residential

Energy  
Biomass/Wood  
Coal Processing/Transportation  
Cogeneration  
District Heating & Co-Generation  
Electric Power Generation - Hydroelectric



- Electric Power Generation - Thermal
- Electric Power Systems Analysis
- Energy Conservation
- Oil & Gas Pipelines
- Oil & Gas Production/Storage/Distribution
- Oil & Gas Refineries/Processing Plants
- Solar Energy
- Wind Energy
- Environmental
  - Air Quality Management
  - Environmental Assessments
  - Environmental Litigation Support
  - Environmental Site Assessments and Audits
  - Groundwater Resources/Hydrogeology
  - Industrial Hygiene and Safety
  - Industrial Wastewater Treatment
  - Laboratory and Treatability Studies
  - LEED Certified after Laboratory
  - Mould Studies
  - Noise & Vibration
  - Record of Site Condition
  - Risk Assessment
  - Solid/Hazardous Waste Management
  - Surface Water Resources
  - Treatability Studies
  - Underground Storage Tank Management
- Forensic
  - Accident Reconstruction
  - Cladding Failures
  - Electrical/Mechanical Failures
  - Fire & Explosions
  - Structural Failures
  - Wind & Water Damage
- Forestry
  - Building Materials: Plywood, Lumber Manufacturing, etc.
  - Forestry
  - Forestry Engineering
  - Pulp, Paper & Fibre Board
  - Pulp/Paper Plants, Products
- Industrial
  - Hydraulic Engineering
  - Machine Design/Analysis
  - Manufacturing Facilities
  - Materials Handling
  - Materials Storage
  - Plant Maintenance
  - Product & Process Design
  - Prototyping & Product Development
  - Time Motion Studies
  - Transportation/Automotive Equipment
- Materials
  - Corrosion Control & Remediation

Design and Selection  
Specifications & Manuals

Mechanical

- Building Codes QP
- Computational Fluid Dynamics
- Computer Aided Engineering
- Cranes & Derricks
- Finite Element Analysis
- Fire Protection Systems
- Heating, Ventilation & A/C
- Plumbing & Piping
- Refrigeration
- Registered Code Agency
- Residential
- Software Development

Municipal

- Infrastructure Rehabilitation
- Residuals Management
- Roads & Street
- Stormwater Management
- Wastewater Collection, Treatment & Disposal
- Wastewater Management
- Water Supply, Treatment & Distribution

Occupational Health And Safety

- Area Classifications - Electrical
- Area Classifications - Hazardous
- Area Classifications - Industrial
- Pre-Start Health & Safety Reviews

Planning

- Drainage Studies
- Industrial Parks
- Land Use
- Site Plans
- Subdivision Plans
- Urban & Rural Design

Project Management

- Buildings
- Construction Management
- Construction Quality Control
- Contract Administration
- Management of Design
- Other
- Procurement Management
- Project Control & Risk Management
- Related Management Services
- Sewer & Water
- Telecommunications
- Transportation
- Value Engineering

Structural - Buildings

- Commercial
- Foundations

- Highrise
- Industrial
- Inspections & Investigations
- Institutional
- Lowrise
- Parking Facilities
- Residential
- Restoration & Repair
- Seismic Retrofit
- Structural - Other
  - Bridges
  - Bunkers & Silos
  - Dams & Locks
  - Tanks & Shells
  - Towers
  - Tunnels
- Surveying
  - Aerial Photography: Photogrammetry/Photo Interpretation/Cartography
  - Construction Layout Surveys
  - Geographic Information Systems
  - Land Surveying/Cadaster
  - Remote Sensing/Satellite Data Interpretation/Imagery
  - Resource Surveys
  - Topographic Surveys
- Temporary Works
  - Excavation Enclosures
  - Formwork
  - Lifting & Moving
  - Scaffolding
  - Structural Shoring

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UMA Engineering Ltd.

Box 655, 514 Stafford Drive

Lethbridge, AB

T1H 2B2, CAN

Phone: (403) 329-4822

Fax: (403) 329-1678

Website: <http://www.uma.aecom.com>

Firm Description:

UMA provides consulting, engineering, and project management services to the community infrastructure, earth and water, transportation, and industrial market sectors.

Specializations:

Agriculture

- Draining and Irrigation Systems/Networks

- Irrigation

- Land Drainage

Building Science

- Fire Protection/Prevention

- Inspections/Investigations

- Technical Audits

Communications/Telecommunications

TV & CATV

Electrical

- Illumination & Lighting
- Motors & Generators

Energy

- Coal Processing/Transportation
- Electric Power Generation - Hydroelectric
- Electric Power Generation - Thermal
- Electric Power Systems Analysis
- Steam Power Generation

Environmental

- Environmental Assessments
- Environmental Site Assessments and Audits
- Groundwater Resources/Hydrogeology
- Industrial Wastewater Treatment
- Record of Site Condition
- Risk Assessment
- Solid/Hazardous Waste Management
- Surface Water Resources
- Underground Storage Tank Management

Forestry

- Pulp, Paper & Fibre Board

Geotechnical

- Earth Structures
- Foundations
- Laboratory Testing
- Site Investigations
- Soil & Rock Mechanics
- Soil Stabilization

Industrial

- Hydraulic Engineering
- Machine Design/Analysis
- Materials Handling
- Materials Storage
- Plant Maintenance

Materials

- Corrosion Control & Remediation
- Testing and Certification

Mechanical

- Computer Aided Engineering
- Cranes & Derricks
- Finite Element Analysis
- Fire Protection Systems
- Heating, Ventilation & A/C
- Machine Design
- Plumbing & Piping
- Refrigeration

Municipal

- Infrastructure Rehabilitation
- Residuals Management
- Roads & Street
- Stormwater Management

Wastewater Collection, Treatment & Disposal  
Wastewater Management  
Water Supply, Treatment & Distribution  
Planning  
  Drainage Studies  
  Industrial Parks  
  Land Use  
  Site Plans  
  Subdivision Plans  
  Urban & Rural Design  
Pressure Vessels  
  Design Modifications  
  Process Piping Design  
Project Management  
  Buildings  
  Construction Management  
  Construction Quality Control  
  Contract Administration  
  Management of Design  
  Procurement Management  
  Project Control & Risk Management  
  Sewer & Water  
  Telecommunications  
  Transportation  
  Value Engineering  
Structural - Buildings  
  Commercial  
  Foundations  
  Industrial  
  Inspections & Investigations  
  Institutional  
  Parking Facilities  
Structural - Other  
  Bridges  
  Bunkers & Silos  
  Dams & Locks  
  Tanks & Shells  
  Towers  
  Tunnels  
Surveying  
  Aerial Photography: Photogrammetry/Photo Interpretation/Cartography  
  Construction Layout Surveys  
  Remote Sensing/Satellite Data Interpretation/Imagery  
  Topographic Surveys  
Temporary Works  
  Lifting & Moving  
  Structural Shoring

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**SAAEP Building Products and Concrete:**

Building Products:

Armtech Construction Products Ltd.  
2210 – 39 Street North, Lethbridge  
Mr. Frank Stang, President  
Phone: 403 - 320 – 2888

Anchor Products  
1 – 2843 – 2 Ave North, Lethbridge  
Phone: 403 – 327 – 7007

B W Construction Products Ltd  
138 – 22 Street North, Lethbridge  
Phone: 403 – 327 – 2700  
Tools, concrete supplies, fasteners. Forming supplies, insulations

Timber-Tech Truss Inc  
1405 – 31 Street North, Lethbridge  
Phone: 403 – 328 - 5499

Alta Aluminum Inc  
252 12 Street North, Lethbridge  
Phone: 403 – 328 – 6777  
aluminum awnings, patio covers, locally manufactured

K C Doors Ltd.  
PO Box 388, Stavely, AB  
Phone: 403 – 549 – 3806

Leading Edge Construction & Millwork  
RR8 18 23 Lethbridge  
Phone: 403 – 329 – 1078

Mar Wood Products

103 Main Street, Barons  
Phone: 403 – 757 – 0082

Ag-Steel Ltd  
Hwy 5, Welling  
Phone: 403 – 752 – 3775

Kawneer Co. Canada Ltd.  
4000 - 18 Ave North, Lethbridge  
Phone: 403 - 382 - 6730  
Website: [www.kawneer.com](http://www.kawneer.com)

Premier Woodworking  
Division of Premier Construction  
Box 593, Picture Butte  
Phone: 403 – 732 – 4682  
Fax: 403 – 732 – 4628  
Custom handcrafted solid doors

Custom Windows & Doors Inc.  
326 N 1 Street, Magrath,  
Phone: 403 – 758 – 3233

Concrete Suppliers:

Burnco Rock Products Ltd.  
2500 Westside Drive W, Lethbridge  
Phone: 403 – 381 – 6110  
Fax: 403 – 381 – 1014  
[www.burnco.com](http://www.burnco.com)

Hurlburt Rock Products  
Claresholm, Phone: 403 – 625 – 3717  
Vulcan, Phone: 403 – 485 – 2666

Inland Concrete Limited  
3104 – 6 Ave N, Lethbridge  
Phone: 403 – 327 – 3175  
[www.inlandcanada.com](http://www.inlandcanada.com)

Lafarge Canada Inc.  
530 9 Ave N, Lethbridge  
Phone: 403 – 328 – 9251  
Fax: 403 – 328 – 5172  
[www.lafargenorthamerica.com](http://www.lafargenorthamerica.com)

Noble Concrete 1987 Ltd.  
Lethbridge, Phone: 403 – 328 – 3500  
Picture Butte, Phone: 403 – 732 – 5628  
[www.nobleconcrete.com](http://www.nobleconcrete.com)

Reg O'Sullivan Construction Ltd.  
1199 Badger Cresc., Pincher Creek  
Phone: 403 – 627 – 2264  
Fax: 403 – 627 – 2030

Riverbend Rock Products  
6220 - 64 Ave, Taber  
Phone: 403 – 223 – 4533

Senneker Construction Ltd.  
PO Box 494, Vauxhall  
Phone: 403 – 654 – 2525

Southwest Concrete Products Ltd.  
Magrath, Phone: 403 – 758 – 6500  
Lundbreck, AB Phone: 403 – 628 – 2188  
Cardston, Phone: 403 – 653 - 4431



**SAAEP Metal Fabricators/Welders/Machine Shops**

Advanced Metal Concepts and Fabrication Ltd.

Phone: 403 - 394 - 1404

Fax: 403 - 394 - 1424:

Charlton & Hill Ltd

655 - 30 Street North, Lethbridge

Phone: 328 - 3473

Custom metal fabrication, computerized profile burning, stainless, aluminum and mild steel fabrication

RCL Metalworks Inc

122 - 2 Street South, Picture Butte

Phone: 732 - 4493

Wayne's Metal Works Ltd.

3010 - 16 Ave North, Lethbridge

Phone: 381 - 7729

Fax: 403 - 328 - 5925

[www.waynesmetalworks.com](http://www.waynesmetalworks.com)

Punching, shearing, and bending. Custom fabrication. Specializing in stainless steel and aluminum.

Varsteel Ltd.

2900 - 5 Ave North, Lethbridge

Phone: 403 - 329 - 0233

Fax: 403 - 327 - 0630

Email: [leth@varsteel.ca](mailto:leth@varsteel.ca)

[www.varsteel.ca](http://www.varsteel.ca)

Plate, structural grating, rebar, pipe and tube. Plasma/flame cut, saw cut, rebar fabrication, shear, form, roll

A & A Welding Service

PO Box 4574, Taber

Phone: 223 - 1973

Agri-Tech Manufacturing Ltd.

PO Box 87,

215 Barons Street

Nobleford

Phone: 403 - 824 - 3737

Fax: 403- 824-3700

Altaweld

Lethbridge

Phone: 403 - 381 - 3925

Fax: 403 – 381 – 8271

Stainless steel welding & fabrication, plant maintenance & construction, B pressure welding, general welding & fabrication

Bel-Aire Welding Ltd.

3235 – 2 Ave North, Lethbridge

Phone: 403 - 327 – 4893

Fax: 403 – 327 -4007

Structural & miscellaneous, fabrication & repair, steel erectors, millwright services

Bell's Welding Ltd.

2508 – 2 Ave North, Lethbridge

Phone: 403-328 – 4528

General machine work

Bosnak Welding Ltd.

2716 – 2 Ave North, Lethbridge

Phone: 403 - 328 – 99151

Fax: 403 – 328 – 0998

Fabrication – aluminum & stainless

C & A Industries Inc.

236 – 36 Street North, Lethbridge

Phone: 403 - 394 – 2343

Fax: 403 – 394 – 2354

Stainless steel fabrication, equipment installation, brake, & shear fabrication, custom fabrication, project management

Claresholm Welding & Fabricating

4030 – 3 Street East, Claresholm

Phone: 403 - 625 – 3824

Fax: 403 – 625 – 4161

Complete machine shop service

D & D Machine Works Ltd

3010 – 6 Ave North, Lethbridge

Phone: 403 - 328 – 8242

DLP Welding (2000)

Sunnyside Road, Lethbridge

Phone: 403 - 329 – 4388

Fax: 430 – 329 - 4395

Eastend Iron Industries Ltd

6215 – 54 Ave, Taber

Phone: 403 - 223 – 2620

Fax: 403 – 223 - 8626

Welding, machining, millwright. Equipment fabrication, installation & repair. Pressure welding, Tig, stainless, aluminum. Plant maintenance

Fabers Welding Ltd

521 – 2 Ave North, Vauxhall  
Phone: 403 - 654 – 2544

Handsaeme Welding Ltd.  
1433 – 11 Street, Coaldale  
Phone: 403 - 345 – 3179  
Fax: 403 – 345 – 2656  
General fabrication, Stainless & aluminum, lathe services

Hi-Tek Sheet Metal  
120D North Mayor Magrath Drive, Lethbridge  
Phone: 403 - 380 – 4212

Jeff Watson Welding  
306C – 9 Ave West, Cardston  
Phone: 403 - 653 – 4202

Jensen's Welding (2006) Ltd.  
7100 – 64 Street, Taber  
Phone: 403 - 223 – 2544  
Fax: 403 – 223 – 8060  
Tank manufacturing, repair & accessories, general fabrication & repairs

KO Welding Ltd.  
Taber  
Phone: 403 - 223 – 4377  
B-Pressure welding

Keho Lake Mechanic & Welding Shop  
PO Box 125, Barons  
Phone: 403 - 757 – 2330

LCW Industries  
Lethbridge  
Phone: 403 - 394 – 1114

Lethbridge Millwright & Welding Ltd.  
1237 – 36 Street North, Lethbridge  
Phone: 403- 329 – 3329  
Fax: 403 – 329 - 4841  
Toll free: 1-888-777-3329  
e-mail: [lethmill@millwright.ca](mailto:lethmill@millwright.ca)  
Millwright services, plant maintenance, general welding & repair, B-Pressure welding. Stainless & aluminum, laser alignment

Liberty Boilers & Mechanical Services Inc  
3302 – 3 Ave South, Lethbridge  
Phone: 403 - 327 – 3921

Mackin Welding  
PO Box 177, Claresholm  
Phone: 403 - 625 – 2711

Mike Hiebert Welding Ltd.  
5326 – 38 Ave, Taber  
Phone: 403 - 308 – 1269

Milner Farms Welding  
PO Box 582, Raymond  
Phone: 403 - 752 – 4295

Outlaw Welding & Mechanical Services Ltd.  
6012 – 62 Street, Taber  
Phone: 403 - 223- 0899 or 403 - 223 – 0507

PMJ Welding & Machining  
Phone: 403 - 739 – 2779

Ridgeland Farm Service  
304 County Road, Warner  
Phone: 403 - 642 – 3747

Spanners Welding Ltd.  
5910 – 47 Street, Taber  
Phone:403-330 – 9342

Wolseley Mechanical Group  
1601 36 Street North, Lethbridge  
Phone: 403 - 327 – 4587

ABC Hvac Services Ltd.  
E-3215 – 16 Ave North, Lethbridge  
Phone: 403 - 327 – 2999

Boma Enterprises Ltd. (metal flashings)  
2215 – 2 Ave North, Lethbridge  
Phone: 403 - 320 – 9661

Bullet Developments (custom plasma arc cutting)  
Kirk Asplund – President  
Box 159, Barons  
Phone: 403 - 757 – 3736  
Website: [www.bullet.ab.ca](http://www.bullet.ab.ca)

Triple J Contracting Inc.  
Stewart Siding/3801 Pebble Place South, Lewthbridge.  
Mr. Duane Farris, owner  
Phone: 403 - 327 – 4810

DTG Machine Shop  
1106 – 18 Ave, Coaldale

Phone: 403 - 345 – 3867

H.S.B Production Ltd. (machine shop & custom manufacturing)  
2210 – 41 Street North, Lethbridge  
Mr. Hans Siebert- Borath, President  
Phone: 403 - 328 – 8794

KAL ROB Machining Ltd  
106 – 2 Street South, Lethbridge  
Don Baker, Owner  
Phone: 403 - 732 – 4389  
Full machine & welding shop service

Lethbridge Industries Ltd.  
3305 – 16 Ave North, Lethbridge  
Mr. Wayne Gayford, General Manager  
Phone: 403 - 328 – 4222  
Fax: 403 – 328 - 4281  
Website: [www.lil.ab.ca](http://www.lil.ab.ca)  
CNC Flame & pattern cutting, CNC Machininh & turning

Lethbridge Machine Shop Inc  
3604 – 14 Ave North, Lethbridge  
Phone: 403 - 320 – 2260  
Mill righting, general & precision machining

Mac3 Machine Inc  
236 – 36 Street North, Lethbridge  
Phone: 403 - 394 – 0030  
Fax: 403 – 394 - 2354

Modern Machine Shop Ltd.  
2720 – 2 Ave North, Lethbridge  
Mr. Charlie Rabl, Manager  
Phone: 403 - 320 – 8815  
General Machining

Hy/Lo Machine & Tool  
2915 – 12 Ave North, Lethbridge  
Mr. Robert Webber, Owner  
Phone: 403 - 328 - 3464

Southern Rewind Ltd.  
3131 – 2 Ave North, Lethbridge  
Phone: 403 - 328 – 9049  
Fax: 403 – 328 – 9371  
[www.southernrewind.com](http://www.southernrewind.com)  
General machining, welding, dynamic balancing

Taber Machine Shop Ltd.  
6407 – Wild Rose Drive, Taber  
Phone: 403 - 223 – 2121

Unc's Machine Shop Ltd.  
5054- 50 Ave, Stavely.  
Phone: 403 - 549 – 3902

Dex Unlimited (repairs, maintenance, general welding & fabrication)  
RR \*, Site 38, Comp 43, Lethbridge  
Mr. Tom Koki, Partner  
Phone: 403 - 320 – 7962

Kirchner Machine Ltd.  
2419 – 2 Ave North, Lethbridge  
Mr. Dwayne Kirchner, Operations Manager  
Phone: 403 - 328 – 5568

**SAAEP Industrial Supplies/Instrumentation/Control Systems/Machinery**

Acklands-Grainger Inc.  
3306 – 9 Ave N , Lethbridge, Phone: 403 – 328 – 8111  
6001 – 54 Ave, Taber, Phone: 403 – 223 – 3974  
[www.acklandsgrainger.com](http://www.acklandsgrainger.com)

Centuryvallen  
3004 – 9 Ave N, Lethbridge  
Phone: 403 – 329 – 4747  
[www.centuryvallen.com](http://www.centuryvallen.com)

Fastenal Canada Company  
#1, 510 – 39 Streets, N, Lethbridge  
Phone: 403 – 317 – 3140  
Fax: 403 – 327 – 3150  
[www.fastenal.com](http://www.fastenal.com)

Haco Canada Inc.  
4406 – 58 Street S, Lethbridge  
Phone: 403 – 380 -5047  
Fax: 403 – 380 – 5048  
[www.hacocanada.com](http://www.hacocanada.com)  
(metal fabrication machinery)

Ian Jones Sales Ltd.  
699 Red Crow Blvd W, Lethbridge

Phone: 403 – 327 – 7367

[www.ianjones.com](http://www.ianjones.com)

(metal fabrication machinery)

Wolseley Mechanical Group  
1601 – 36 Street N, Lethbridge

Phone: 403 – 327 – 4587

[www.wolseleyinc.ca](http://www.wolseleyinc.ca)

Pyramid Electric Corporation

Phone: 725 – 2501

Toll Free: 1-800-955-2988

[www.pyramidcorporation.com](http://www.pyramidcorporation.com)

(instrumentation, control panels)

Syntech Enerflex

3618 – 14 Ave N, Lethbridge, Phone: 403 – 329 – 8184

6010 – 64 Ave, Taber, Phone: 403 – 223 – 4484

[www.enerflex.com](http://www.enerflex.com)

(electrical, instrumentation and controls technologies)

Tarpon Energy Services Ltd.

6208 – 52 Street, Taber

Phone: 403 – 223 – 4415

Fax: 403 – 223 – 4484

[www.tarponenergy.com](http://www.tarponenergy.com)

(electrical & instrumentation, control systems)

3 D Controls Ltd.

6301 – 55 Street, Taber

Phone: 403 – 223 - 1117

**SAAEP Janitorial Services**

A M Cleaning  
192W 100 N, Raymond  
Phone: 403 – 752 – 3770  
Fax: 403 – 752 – 3717

Aomo Janitorial Service  
928 Kodiak Place N, Lethbridge  
Phone: 403 – 380 – 9154

Chinook Building Maintenance  
Lethbridge  
Phone: 403 – 329 – 6995

The Clean Street Cleaning Co  
2121 – 8 Ave S, Lethbridge  
Phone: 403 – 382 – 9130

Clean Sweep Janitorial  
1406 – 13 Street S, Lethbridge  
Phone: 403 – 308 – 9268

Dean-Clean Professional Cleaning Services  
Lethbridge  
Phone: 403 – 345 – 2156  
Fax: 403 – 345 – 2154

G.F.C. Property Maintenance Specialists Inc  
#210C, 12A Street N, Lethbridge  
Phone: 403 – 824 – 3355  
Fax: 403 – 328 – 9071

JJMS Janitorial Service  
Lethbridge  
Phone: 403 – 360 – 3149



J & M Maintenance

Lethbridge

Phone: 403 – 329 – 3818

Fax: 403 – 329 – 6559

Jani King of Southern Alberta

Lethbridge

Phone: 403 – 329 – 0193

Janus Janitorial & Maintenance Service

1215 – 2 Ave S, Lethbridge

Phone: 403 – 329 – 1936

Sani-Service of Alberta

538 – 36 Street N, Lethbridge

Phone: 403 – 320 – 5044

Shambhala Maintenance

Lethbridge

Phone: 403 – 329 – 3493

Taber Commercial Cleaning

Taber

Phone: 403 – 223 – 2871

Teradel Inc

Lethbridge

Phone: 403 – 328 – 0934

Zarco Janitorial Services

#3, 543 – 9 Ave N, Lethbridge

Phone: 403 – 320 - 6162

**SAAEP Office Equipment, Furniture & Supplies**

Corporate Business Equipment Ltd,  
423 – 5 Street S, Lethbridge  
Phone: 403 – 381 – 0966

The Cypress Group  
2830 – 12 Ave N, Lethbridge  
Phone: 403 – 327 – 8500  
Fax: 403 – 328 – 0202  
[www.thecypressgroup.ca](http://www.thecypressgroup.ca)

InfiniCom  
Office Systems  
2910 – 16 Ave N, Lethbridge  
Phone: 403 – 328 – 4404  
Fax: 403 – 381 – 6606

Local Business Products Ltd.  
#4, 4006 – 9 Ave N, Lethbridge  
Phone: 403 – 320 – 1004

Tri-Tech Office Products Ltd.  
1430D – 31 Street N, Lethbridge  
Phone: 403 – 328 – 8077  
Fax: 403 – 329 – 0977

TRS Office Products Ltd.  
1234B – 3 Ave N, Lethbridge  
Phone: 403 – 328 – 1188  
[www.trsofficeware.ca](http://www.trsofficeware.ca)

Lethbridge Document Solutions  
60 Wildwood Road W, Lethbridge  
Phone: 403 – 381 – 6931

Ergonomic Connections  
Lethbridge  
Phone: 403 – 332- 0295  
[www.ergoconnections.com](http://www.ergoconnections.com)

Desk & File Office Furniture Inc.  
1713 – 2 Ave S, Lethbridge  
Phone: 403 – 328 – 5266  
Fax: 403 – 403 – 328 – 5286

Local Business Products Ltd.

#4, 4006- 9 Ave N, Lethbridge  
Phone: 403 – 320 – 1004

Appendix B

2007 Planned North American Bio-diesel Plants

(Sourced from Bio-diesel Magazine)

Bio-diesel proposed plants 2007

Pacific Region:



#### Baker Commodities

Location: Vernon, California

Target groundbreaking: undeclared

Feedstock: multi-feedstock

Capacity: 10 MMgy

Process technology: Superior Process Technologies

Synopsis: According to Research and Development Director Doug Smith, Baker Commodities is still in the land acquisition phase. The company has been involved with rendering since 1937. They intend to use rendering facility coproducts as a bio-diesel feedstock.

#### BlueEarth Maui Bio-diesel LLC

Location: Maui, Hawaii

Target groundbreaking: undeclared

Feedstock: undeclared

Capacity: 40 MMgy

Process technology: undeclared

Synopsis: Local markets are currently dependent on fossil fuels for 93 percent of energy requirements. According to spokesman Peter Rosegg, BlueEarth is working closely with the Natural Resources Defense Council to determine what feedstock will best suit the company's desire for sustainability.

#### Imperium Hawaii

Location: Oahu, Hawaii

Target groundbreaking: undeclared

Feedstock: palm oil

Capacity: 100 MMgy

Process technology: Imperium Renewables

Synopsis: Imperium is in the permitting stage and intends to use the fuel it produces to help alleviate Oahu's imported energy needs. The plant will also work with the local agriculture industry to develop a strong source of feedstocks from vegetable matter.

Whole Energy

Location: Mt. Vernon, Washington

Target groundbreaking: undeclared

Feedstock: waste vegetable oil/virgin oils

Capacity: 10 MMgy

Process technology: Whole Energy

Synopsis: Whole Energy intends to be on line and producing bio-diesel in the next 10 to 12 months. The company is also partnering with the city of Pacifica, Calif., to build a bio-diesel facility there. Currently, the company markets and distributes the bio-diesel it rails into Washington

Mountain Region:



Arizona Bio-fuels

Location: Willcox, Arizona

Target groundbreaking: September 2007

Feedstock: multi-feedstock

Capacity: 6 MMgy

Process technology: Suntec Industries Inc.

Synopsis: According to Arizona Bio-fuels President Michael Guymon, the company is moving ahead with plans for the bio-diesel refinery that will utilize some waste vegetable oil but mostly safflower oil as its feedstock. The company has yet to finalize plans for its glycerin.

Grecycle Arizona LLC

Location: Tucson, Arizona

Target groundbreaking: undeclared

Feedstock: waste cooking oil

Capacity: 1 MMgy

Process technology: undeclared

Synopsis: According to Grecycle's Michael Kazz, the company has purchased the land for the bio-diesel refinery and is in the process of submitting plans for the project. The company currently has a pilot-scale bio-diesel refinery that produces fuel from waste cooking oil. The glycerin by-product will be used as boiler fuel and in fire logs containing recycled materials.

San Juan Bio-diesel

Location: Dove Creek, Colorado

Target groundbreaking: August 2007

Feedstock: multi-feedstock

Capacity: 0.5 MMgy

Process technology: San Juan Bio-diesel

Synopsis: Project Manager Jeff Berman says San Juan Bio-diesel should complete its funding by the end of June and break ground in August on a 5 MMgy crush plant and a 500,000-gallon-per-year bio-diesel plant. The plant could be expanded in the future to produce 2.5 MMgy and will use sunflower, canola and safflower oil as its feedstock.

American Renewable Fuels Inc.

Location: Clovis, New Mexico

Target groundbreaking: third quarter 2007

Feedstock: animal fats/waste, vegetable oil.

Capacity: 75 MMgy

Process technology: Energea

Synopsis: American Renewable Fuels President and CEO Ross Garrity says the company's New Mexico plant is currently in the design stages with construction set for the third quarter of 2007. The plant is expected to begin production in the second quarter of 2008. The site for a second plant hasn't been announced, Garrity says. American Renewable Fuels has secured the North American Free Trade Agreement Region patent rights to the Energea process and will sublicense it to selected producers.

Cetane Energy

Location: Carlsbad, New Mexico

Target groundbreaking: fourth quarter 2007

Feedstock: algae oil

Capacity: 3 MMgy

Process technology: Cetane Energy

Synopsis: According to Ronnie Walterscheid, chairman of the company's board of directors, Cetane Energy is currently finishing up financing and purchasing land.

Construction of the algae-oil-to-bio-diesel plant is expected to begin before the end of 2007.

North- CentralWest Region:



Franklin Energy LLC

Location: Hampton, Iowa

Target groundbreaking: undeclared

Feedstock: soy oil/animal fats

Capacity: 5 MMgy

Process technology: Greenline Industries

Synopsis: Estimated to cost \$7.5 million, this project is conducting a feasibility study, according to Franklin Energy President Jeff Meints. Depending on the outcome of the study and the reception from the surrounding community, Franklin Energy would likely begin renovating a former Maytag factory this fall that would house the refining facility. Progressive Energy Construction Inc. would be the project's general contractor.

Future Energy LLC

Location: Goldfield, Iowa

Target groundbreaking: spring 2007

Feedstock: multi-feedstock

Capacity: 60 MMgy

Process technology: Westfalia/Bratney Companies

Synopsis: Permitting and the institutional portion of an equity drive is underway. According to Project Manager Scott Erickson, Future Energy LLC hopes to break ground this year and begin production in late 2008. The site is on a Union Pacific Railway mainline. Some pre-construction work has been done to the site because an ethanol plant project was going to be located there. The plant will refine its own glycerin.

Hawkeye Bio Energy LLC

Location: Camanche, Iowa

Target groundbreaking: undeclared

Feedstock: multi-feedstock

Capacity: 60 MMgy

Process technology: undeclared



Synopsis: According to Project Coordinator Mike Meyer, this plant is still in the planning and development stages. It has launched its capital drive, applied for a guaranteed loan from the USDA and started environmental permitting. Meyer says the plant's location is unique in that it is a former nitrogen fertilizer manufacturing site. There are four large liquid storage tanks with a combined 23 million gallons of capacity. Utilities, including wells and electrical supplies, are already on-site. The site, located on a Union Pacific rail line, is 1.5 miles from the Mississippi River, one mile from the Iowa, Chicago and Eastern Rail line, and 20 miles from Interstate 80.

#### Maple River Energy

Location: Galva, Iowa

Target groundbreaking: mid-summer 2007

Feedstock: soy oil/corn oil

Capacity: 5 MMgy

Process technology: Technochem International

Synopsis: With about 87 percent of funding raised and permitting poised to begin, this plant should be breaking ground by mid-summer 2007, according to General Manager Delayne Johnson. A general contractor hasn't been declared yet. In addition to crushing and utilizing soy oil, the plant will also be using extracted corn oil from the adjacent, Quad-County Corn Processors ethanol plant.

#### Northern Bio Energy

Location: Estherville, Iowa

Target groundbreaking: summer 2007

Feedstock: soy oil/animal fats

Capacity: 30 MMgy

Process technology: Engineering, Automation & Design Inc./Crown Iron Works

Synopsis: The phase I environmental study is complete. Air permit applications have been filed. The Union Pacific Railroad is expected to serve the site, which is south of Estherville. A letter of intent has been signed with C&N Bio-fuels Marketing Corp. to market the bio-diesel. FCStone is slated to procure feedstock and provide risk management services.

#### Raccoon Valley Bio-Diesel

Location: Storm Lake, Iowa

Target groundbreaking: spring 2007

Feedstock: soy oil/virgin vegetable oils

Capacity: 60 MMgy

Process technology: Crown Ironworks

Synopsis: This project is still in its equity drive phase, but is moving along and has all permitting completed, according to General Manager Joe Sandor. Along with a traditional bio-diesel production facility, the site will also feature an 80 MMgy crude soy oil refinery, a retail and wholesale fueling station and terminal, and a plastics operation utilizing glycerin from the bio-diesel plant, Sandor says. He told Bio-diesel Magazine that the company hopes to be producing by the spring of 2008. Engineering, Automation & Design Inc. is the facility's general contractor.

#### Southern Iowa Bioenergy

Location: Lamoni, Iowa

Target groundbreaking: August 2007

Feedstock: soy oil/animal fats

Capacity: 30 MMgy

Process technology: undeclared

Synopsis: According to Southern Iowa Bioenergy President William Higdon, this project is still raising equity and is projected to break ground in August. The plant is located on Interstate 35 and has excellent transportation routes, including a pipeline, Higdon says.

#### Soy Energy LLC

Location: Marcus, Iowa

Target groundbreaking: undeclared

Feedstock: multi-feedstock

Capacity: 30 MMgy

Process technology: Westfalia/Bratney Companies

Synopsis: Soy Energy LLC board member Doug Lansink told Bio-diesel Magazine that the project was still in its equity drive in April. Project organizers have signed a letter of intent with the local landfill for a 10-year term to provide the plant's energy source, a pellet consisting of compacted landfill materials including paper, cardboard and a small amount of plastic. It costs close to half the price of natural gas and will be used to fire the plant's boiler system, according to Lansink.

#### Terra Renewable Energy LLC

Location: Council Bluffs, Iowa

Target groundbreaking: undeclared

Feedstock: soy oil/animal fats

Capacity: 60 MMgy

Process technology: undeclared

Synopsis: Terra Renewable Energy's Chairman Randy Yuken tells Bio-diesel Magazine that this project has completed its feasibility study. It's now pulling together requests for proposals for contracting bids and is nearly ready to launch its equity drive. The plant's location on Interstate 29 near Interstate 80 gives it good highway access, as well as access to a major railroad. It's also close to a Bunge soybean processing facility and Southwest Iowa Renewable Energy's 110 MMgy ethanol plant currently under construction.

#### Victory Renewable Fuels LLC

Location: Lyon County, Iowa

Target groundbreaking: undeclared

Feedstock: multi-feedstock

Capacity: 30 MMgy

Process technology: Renewable Energy Group Inc.

Synopsis: This project is still in the midst of its equity drive, but could have all of the \$58 million needed to cover the cost of the plant by the end of June, says Victory Renewable Fuels Board of Directors President Alan "Shorty" Blauwet. "All permitting necessary to

this point has been done by [Renewable Energy Group],” Blauwet says, adding that Victory Renewable Fuels’ plant will be located near rail access in the extreme northwest corner of the state.

#### Dial Ford County Bio Renewable Fuels

Location: Dodge City, Kansas

Target groundbreaking: late 2008

Feedstock: soy oil

Capacity: 60 MMgy

Process technology: undeclared

Synopsis: The bio-diesel plant will be phase two of a project that will collocate the facility with a 113 MMgy ethanol plant, which is slated to break ground in late 2007, says President and Managing Partner Dave Wehner. The bio-diesel refinery portion could get underway sooner, but it is dependent on the financial environment at that time, Wehner says. This project will be creating its own on-site energy to provide power for both the ethanol and the bio-diesel operations.

#### Nexsun Energy LLC

Location: Ulysses, Kansas

Target groundbreaking: second quarter 2008

Feedstock: beef fat

Capacity: 30 MMgy

Process technology: undeclared

Synopsis: The project is currently in its fundraising stage and hasn’t begun permitting work yet, according to Project Manager Rod Kreie. It will be located near a 40 MMgy ethanol plant designed by ICM Inc., one of the ethanol industry’s leading process technology firms. “We’re trying to find a technology that will mesh with ICM [and be] the best from a collocation standpoint,” he says. In addition to the bio-diesel plant, there will also be a 40 MMgy ethanol plant located on site. ICM Inc. is one of the ethanol industry’s leading process technology firms.

#### Renewable Energy Group Inc.-Emporia

Location: Emporia, Kansas

Target groundbreaking: June 2007

Feedstock: soy oil/animal fats

Capacity: 60 MMgy

Process technology: Renewable Energy Group Inc.

Synopsis: This recently announced Renewable Energy Group (REG) project is scheduled to start production by the 2008. The plant will be located near a Bunge crush facility on 42.7 acres of land near a Burlington Northern Santa Fe railroad line. According to REG Public Relations Manager Alicia Clancy, the soy oil will be piped underground from Bunge to the REG plant. REG is currently working with the Regional Development Association of East Central Kansas to change the site’s zoning from light to heavy industrial.

#### Northstar Bioenergy LLC

Location: Hallock, Minnesota

Target groundbreaking: undeclared

Feedstock: canola oil

Capacity: 2 MMgy to 3 MMgy

Process technology: undeclared

Synopsis: The project is taking part in Minnesota's Job Opportunity Building Zone program, which is designed to stimulate economic development activity by providing local and state tax exemptions to new and expanding businesses.

American Energy Producers

Location: Carrolton, Missouri

Target groundbreaking: January 2008

Feedstock: soy oil

Capacity: 50 MMgy

Process technology: A-Lert Construction Services

Synopsis: This project, which will feature a soybean crushing facility and a bio-diesel plant, is currently completing equity and additional financing, according to American Energy Producers President J. David Swearingin. Construction is slated to begin in January 2008 with bio-diesel production to begin by the fourth quarter of 2008.

Central Missouri Energy

Location: Fulton, Missouri

Target groundbreaking: May 2007

Feedstock: multi-feedstock

Capacity: 10 MMgy

Process technology: SRS Engineering Corp.

Synopsis: Estimated to cost \$7 million and create 20 jobs, this plant has completed much of its permitting and is awaiting the finalization of a community development block grant for utilities from the state before beginning construction, says Plant Manager Boyd Ware. Ware's construction company, Ware Construction, will be the general contractor for the project, which will utilize several acres of an abandoned industrial site. Construction of the plant, which includes rehabilitation of the site that used to house a clay storage and refractory plant for brick firing, is expected to take between 10 and 12 months, Ware says.

Heartland Bio-fuels LLC

Location: Rock Port, Missouri

Target groundbreaking: July/August 2007

Feedstock: soy oil/animal fats

Capacity: 30 MMgy

Process technology: Renewable Energy Group

Synopsis: This plant is nearing completion of its equity drive and is already working on permitting, says Heartland Bio-fuels Chairman Stan Griffin. He hopes the plant will be operating in nine to 12 months after the start of construction.

Midwest Bio-fuels LLC

Location: High Hill, Missouri

Target groundbreaking: summer 2007

Feedstock: multi-feedstock

Capacity: 5 MMgy

Process technology: undeclared

Synopsis: President Robert Timothy Short says this plant is finalizing its finance package. Similar to another High Hill, Mo., bio-diesel project that is currently under construction, Midwest Bio-fuels will utilize multiple feedstocks to produce 5 MMgy.

Terra Bioenergy LLC

Location: St. Joseph, Missouri

Target groundbreaking: undeclared

Feedstock: undeclared

Capacity: 15 MMgy

Process technology: Desmet Ballestra

Synopsis: A general contractor and off-take/procurement company hasn't been finalized. The group filed for several air permits with the Missouri Department of Natural Resources on Dec. 5, 2006. The project formerly operated under the name American Bio-fuels Inc.

Horizon Bio-fuels Inc.

Location: Fremont, Nebraska

Target groundbreaking: 2007

Feedstock: animal fats

Capacity: 6.2 MMgy

Process technology: undeclared

Synopsis: This project is currently working on final site negotiations and looks to begin construction as this step is complete, according to Joey Barnes, a part-interest owner of the plant.

Mobius Bio-fuels

Location: Fremont, Nebraska

Target groundbreaking: 2007

Feedstock: multi-feedstock

Capacity: 10 MMgy

Process technology: Technochem International

Synopsis: This project has purchased its land and is currently completing permitting, as well as its equity drive, says General Partner and Owner Robert Buscher. The modular construction will be overseen by general contractor Mainelli Mechanical Contractors Inc. and will allow the plant to expand to 30 MMgy within the first three years of production, Buscher says.

Unified Soy Products LLC

Location: Orchard, Nebraska

Target groundbreaking: third quarter 2007

Feedstock: soy oil

Capacity: 9 MMgy

Process technology: Capital Technologies Inc.

Synopsis: The site is also located on a short line spur of Northeast Nebraska Rail.

Northern Prairie Envirofuels LLC

Location: Munich, North Dakota

Target groundbreaking: undeclared

Feedstock: canola oil

Capacity: 30 MMgy

Process technology: Kadrmas, Lee & Jackson

Synopsis: While the project will begin by producing 30 MMgy, it may scale back to possibly use some oil for the food industry, says Chairman Bryan Anderson. The board is currently finishing up the business plan and hopes to kick off its equity drive this summer. Anderson says Kadrmas, Lee & Jackson will handle the selection of a general contractor. This plant's location is "ideal for the fact that it is in the largest canola-producing area in the United States," Anderson says.

Tall Grass BioIndustries

Location: southeast North Dakota

Target groundbreaking: undeclared

Feedstock: soy oil

Capacity: undeclared

Process technology: Kadrmas, Lee & Jackson

Synopsis: According to Project Manager Mark Luther of Kadrmas, Lee & Jackson, the feasibility study is nearly done for this project that will include three different sites in the southeastern part of the state. Two sites have been chosen. All three sites will include a soybean crushing facility and a bio-diesel plant.

Unnamed

Location: southwest North Dakota

Target groundbreaking: undeclared

Feedstock: canola oil

Capacity: undeclared

Process technology: Kadrmas, Lee & Jackson

Synopsis: The feasibility study is complete, and a board has been formed for this project, according to Kadrmas, Lee & Jackson Project Manager Mark Luther.

South-Central West:



Green Way Bio Energy

Location: Little Rock, Arkansas

Target groundbreaking: undeclared

Feedstock: undeclared

Capacity: 10 MMgy

Process technology: undeclared

Synopsis: This project was announced in September 2006. It is slated to be built along the Arkansas River in the Little Rock Port Authority. Little Rock-based Engineering, Compliance & Construction Inc. is helping to develop the project.

Green Earth Fuels LLC

Location: Harvey, Louisiana

Target groundbreaking: second or third quarter 2007

Feedstock: multi-feedstock

Capacity: 86 MMgy

Process technology: Green Earth Fuels LLC

Synopsis: The plant site is an existing Kinder Morgan fuel terminal along the Mississippi River. Construction permits are being finalized, and operating permits are in place. The project is the company's second plant. The first, an 86 MMgy plant in Houston, Texas, is slated to start up this summer.

Crockett Bio-fuels LLC

Location: Crockett, Texas

Target groundbreaking: undeclared

Feedstock: multi-feedstock

Capacity: 3 MMgy

Process technology: undeclared

Synopsis: Financing is underway for this project, which is being developed by GeoGreen Fuels. GeoGreen operates a 3 MMgy plant in Gonzales, Texas.

El Campo Bio-fuels LLC

Location: El Campo, Texas

Target groundbreaking: undeclared

Feedstock: multi-feedstock

Capacity: 5 MMgy

Process technology: undeclared

Synopsis: Financing is underway for this project, which is being developed by GeoGreen Fuels. GeoGreen operates a 3 MMgy plant in Gonzales, Texas.

Nova Biosource Fuels LLC

Location: Muskogee, Oklahoma

Target groundbreaking: undeclared

Feedstock: undeclared

Capacity: 60 MMgy

Process technology: Nova Biosource

Synopsis: The company has reached a renewable 10-year lease agreement for 28 acres in the Port of Muskogee Industrial Park. The engineering and permitting processes have begun, according to a U.S. Securities and Exchange Commission filing. Subcontractors and equipment vendors have started the procurement and fabrication of long lead-time items for the project, the filing said.

#### North-Central East:



America's Renewable Energy LLC

Location: Quincy, Illinois

Target groundbreaking: July 2007

Feedstock: soy oil

Capacity: 60 MMgy

Process technology: Crown Ironworks

Synopsis: According to America's Renewable Energy COO Todd Ewing, this facility's air permit qualifications were being processed and EPC contracts negotiated at press time. The plant will be located on a 172-acre site near an Archer Daniels Midland Co. soybean crushing facility, which will be procuring and supplying feedstock for the bio-



diesel plant's production. Managed by Progressive Energies Inc., the plant has the potential to expand. The facility will have access to a Burlington Northern Santa Fe Railway junction along with truck and barge accessibility, Ewing says.

BioFuels Manufacturing Illinois Inc.

Location: Peoria, Illinois

Target groundbreaking: third quarter 2007

Feedstock: soy oil

Capacity: 45 MMgy

Process technology: undeclared

Synopsis: This project will sit on a 10-acre industrial park west of Peoria. The site could expand to 30 acres, according to President Sudhir Seth. At full capacity, the company will tap oil from nearly 1 million acres of Illinois soybeans and utilize nine Archer Daniels Midland Co. crushing facilities near the plant. Permitting and zoning are in place, but an application for a state grant was pending at press time, Seth says. The company plans to expand production capacity to 120 MMgy within five years. It has also signed a marketing agreement with Growmark to distribute and market bio-diesel and glycerin.

Blackhawk Bio-fuels LLC

Location: Freeport, Illinois

Target groundbreaking: May 2007

Feedstock: multi-feedstock

Capacity: 30 MMgy

Process technology: Renewable Energy Group

Synopsis: According to Blackhawk Bio-fuels spokesman Bruce Johnson, this project was nearing the end of its equity drive with all permits in place at press time. Johnson says the company hopes to begin construction in May, but was waiting on some grants.

Preliminary dirt work was underway. Johnson says the location of the plant is ideal, near metro markets and in close proximity to soy feedstocks. Renewable Energy Group will market the plant's glycerin.

Bunge North America

Location: Cairo, Illinois

Target groundbreaking: undeclared

Feedstock: undeclared

Capacity: undeclared

Process technology: undeclared

Synopsis: According to Director of Communications Deborah Seidel, this project is currently under due diligence. No further comment was available.

Chicago Bio-diesel Inc.

Location: Chicago, Illinois

Target groundbreaking: second quarter 2008

Feedstock: soy oil

Capacity: 30 MMgy

Process technology: undeclared

**Synopsis:** This project was undergoing restructuring of financial issues at press time, according to President Rick Bak. What will make this facility unique is that it will be built in the heart of Chicago, which makes it ideal to input feedstock and distribute product via railroad. According to Bak, the facility's technology is inexpensive and versatile. Bak says the company plans on turning the glycerin into another product, but information on that product was undisclosed.

**Diamond Bio-fuels**

Location: Mazon, Illinois

Target groundbreaking: second quarter 2007

Feedstock: animal fats/yellow grease

Capacity: 0.5 MMgy

Process technology: GlobeTech

**Synopsis:** According to Diamond Bio-fuels President John Cutcher, this project was working out permitting issues at press time and is shooting for construction in the third quarter of 2007. The facility is privately financed, and there are no plans to market the glycerin byproduct, Cutcher says. He says this is a new project that is being pursued since the company's initial plans for a plant in Channahon, Ill., didn't reach fruition.

**Illinois Bio-fuel Group LLC**

Location: Princeton, Illinois

Target groundbreaking: June 2007

Feedstock: soy oil

Capacity: 30 MMgy

Process technology: Safer Energy

**Synopsis:** A joint venture with U.S. Sustainable Energy Corp. and Sustainable Power Corp, this project's funding and permitting are complete, according to Illinois Bio-fuel Group President Dennis Radcliff. All produced bio-diesel will meet ASTM standards, Radcliff says. Redwood Consultants is also involved in the project.

**National Trail Bio-diesel Group LLC**

Location: Newton, Illinois

Target groundbreaking: June 2007

Feedstock: soy oil

Capacity: 30 MMgy

Process technology: Desmet Ballestra

**Synopsis:** According to Dick Grogg, project coordinator for National Trail Bio-diesel Group LLC, financing and permitting are all in place. The proposed project has raised enough equity to satisfy all of the offers to finance the plant. Grogg says a state grant was pending to finalize funding at press time. Grogg says the facility is wholly owned by Illinois investors.

**Solutia Inc.**

Location: Sauget, Illinois

Target groundbreaking: undeclared

Feedstock: undeclared

Capacity: undeclared

Process technology: undeclared

Synopsis: According to spokeswoman Missy Hammonds, this project is looking to utilize brownfields and unused assets for a proposed bio-diesel project. The project would be in partnership with Center Ethanol, a subsidiary of Center Oil Company, which is currently under construction. Solutia Inc. intends to integrate its bio-diesel venture with Center Ethanol.

USA Bio-fuels

Location: South Milford, Illinois

Target groundbreaking: undeclared

Feedstock: soy oil

Capacity: 60 MMgy

Process technology: undeclared

Synopsis: Once complete, this plant will be one of the largest bio-diesel facilities in the country, with plans to double its capacity by 2011. The plant is slated to begin operations in 2008 and employ approximately 110 employees. Ultra Soy of America LLC will operate this facility.

Indiana Clean Energy LLC

Location: Frankfort, Indiana

Target groundbreaking: May 2007

Feedstock: soy oil

Capacity: 80 MMgy

Process technology: undeclared

Synopsis: At press time, this project was in the process of finalizing its equity drive and is expected to begin construction soon with production anticipated in January 2008, according to CFO Mark Bunner. Bunner says the project's location is ideal because it is close to the feedstock and distribution points.

NuFuels

Location: Huntington, Indiana

Target groundbreaking: fourth quarter 2007

Feedstock: multi-feedstock

Capacity: 30 MMgy

Process technology: undeclared

Synopsis: According to Plant Manager Joe Bellavance, the equity drive was underway at press time. Other financial and permitting issues weren't disclosed.

Advanced Bio-diesel Partners Inc.

Location: Ann Arbor, Michigan

Target groundbreaking: undeclared

Feedstock: waste cooking oil

Capacity: 1.3 MMgy

Process technology: undeclared

Synopsis: According to Marketing and Purchasing Officer Chris Fraleigh, “this plant still has life, but it will probably be a pilot plant.”

Advanced Bio-diesel Partners Inc.

Location: Ecorse and Saginaw, Michigan

Target groundbreaking: undeclared

Feedstock: multi-feedstock

Capacity: 4 MMgy

Process technology: undeclared

Synopsis: According to Marketing and Purchasing Officer Chris Fraleigh, discussions on private funding, equity drives and permitting issues between partners were in progress at press time. Results of feasibility studies for both projects were in progress at press time. Fraleigh says the company and its affiliates are determining sites with marine and rail accessibility for both plants.

Advanced Bio-fuels LLC

Location: Inkster, Michigan

Target groundbreaking: summer 2007

Feedstock: soy oil

Capacity: 10 MMgy

Process technology: undeclared

Synopsis: This project’s financial issues were complete, and permitting was being finalized at press time, according to CEO Steve DiMaggio. DiMaggio says the company is retrofitting the building where it operated a hazardous waste materials storage unit under the name Advanced Resource Recovery LLC. The company will redeploy its hazard waste assets for use in producing bio-diesel. The plant is expected to be in operation in late 2007.

Emerald Bio-fuels

Location: Muskegon, Michigan

Target groundbreaking: fourth quarter 2007

Feedstock: multi-feedstock

Capacity: 30 MMgy

Process technology: Emerald Bio-fuels

Synopsis: CEO David Drew says the company is in the process of obtaining its permits. The project is being developed in conjunction with a chemical processing company.

Natural Alternative Fuels

Location: Flint, Michigan

Target groundbreaking: April 2008

Feedstock: soy oil

Capacity: 10 MMgy

Process technology: undeclared

Synopsis: This project’s funding and permitting issues were still pending at press time. Operations are expected to begin by the third quarter of 2008, according to President Kenneth Reed. Although bio-diesel is the company’s niche, Reed intends to construct an

ethanol plant adjacent to the facility. Natural Alternative Fuels will utilize existing rail and road infrastructures for cost-effective means of production and output. The facility is expandable to double its capacity, Reed says.

FirmGreen Energy Inc.

Location: Circleville, Ohio

Target groundbreaking: undeclared

Feedstock: undeclared

Capacity: undeclared

Process technology: undeclared

Synopsis: According to Communications Director Ronda Howard, the company is working with Green Investment Group as a joint venture. Green Investment Group has bought property with intentions to cooperatively own and operate the future facility with FirmGreen Energy. "It's too early to divulge any further information at this point," she says.

FirmGreen Energy Inc.

Location: Grove City, Ohio

Target groundbreaking: 2008

Feedstock: vegetable oil

Capacity: 20 MMgy

Process technology: FirmGreen Energy, Inc.

Synopsis: The Ohio EPA recently approved the installation of FirmGreen's processing facilities, which are permitted to produce up to 20 million gallons of methanol annually for use in bio-diesel production and fuel cell technology. The methanol will be created from landfill gas.

Xenerga

Location: Columbus, Ohio

Target groundbreaking: July 2007

Feedstock: yellow grease/animal fats

Capacity: 5 MMgy

Process technology: Xenerga

Synopsis: According to Chief Communications Director Dave Jarrett, this entry represents three proposed bio-diesel plants that Florida-based Xenerga is looking to build in Columbus. Jarrett says financing and permitting issues were close to being finalized at press time for all three with an undisclosed Columbus partner involved with the project. Xenerga, a member of the National Bio-diesel Board and National Renderers Association Inc., plans to have the glycerin marketed by a third-party distributor, Jarrett says.

Ardisam Inc.

Location: Chetek, Wisconsin

Target groundbreaking: undeclared

Feedstock: sunflower oil/canola oil

Capacity: 3 MMgy

Process technology: Greenline Industries

Synopsis: This project's permitting and financial issues have been completed, according to Bio-fuels Operations Manager Herb Schweitzer. The plant will utilize existing rail and roadways for the transport of feedstock. Schweitzer says the plant has the potential to double its capacity.

North American Bio-diesel LLC

Location: Milwaukee, Wisconsin

Target groundbreaking: August 2007

Feedstock: multi-feedstock

Capacity: 20 MMgy

Process technology: NextGen Fuel Inc.

Synopsis: This project's permits were all in place, but financing was still pending at press time, according to company President Richard Sawall. The plant will be located near the Port of Milwaukee, where it will utilize existing rail and road infrastructures, as well as transport accessibility from the St. Lawrence Seaway in the Great Lakes. The plant has the potential to expand to 100 MMgy. "We're going to be able to put a high capacity plant on a very small footprint within a very urban area," he says.

Omni Bioenergy LLC

Location: Madison, Wisconsin

Target groundbreaking: undeclared

Feedstock: undeclared

Capacity: 44 MMgy

Process technology: undeclared

Synopsis: This project is in an enterprise zone within an industrial transportation park. Funding was being finalized at press time, according to a company spokesman. The plant's design and property lease are in place.

TPFC

Location: Ripon, Wisconsin

Target groundbreaking: undeclared

Feedstock: soy oil

Capacity: undeclared

Process technology: undeclared

Synopsis: According to Lori McEathron, executive director of the Ripon Community Development Corporation, this project was in the preliminary stages of reviewing infrastructure and financing issues at press time.

WRR Environmental Services Company Inc.

Location: Eau Claire, Wisconsin

Target groundbreaking: undeclared

Feedstock: soy oil

Capacity: 2.4 MMgy

Process technology: WRR Environmental Services Company Inc.

Synopsis: According to CEO James Hager, permitting and financial issues has been completed. Feedstock and output supply will be transported by truck and rail, he says.

South-Central East:



Green Earth Bio-Fuel Inc.

Location: Irvine, Kentucky

Target groundbreaking: undeclared

Feedstock: undeclared

Capacity: 30 MMgy

Process technology: undeclared

Synopsis: Green Earth Bio-Fuel President G.G. Morgan says the plant is experiencing some legal hang-ups. The plans are complete, and the company is waiting for the situation to become more favorable before proceeding with construction.

BioPower USA LLC

Location: Knoxville, Tennessee

Target groundbreaking: undeclared

Feedstock: multi-feedstock

Capacity: 30 MMgy

Process technology: BioPower USA LLC

Synopsis: According to company President Mark Troupe, BioPower USA has developed its own process technology and has licensed it to a small facility in Nashville, Tenn. Pending that plant's successful start-up, BioPower will seek investors in a large-scale plant in Knoxville.

Energia Fuels LLC

Location: Greenfield, Tennessee

Target groundbreaking: undeclared

Feedstock: soy oil

Capacity: 50 MMgy

Process technology: undeclared

Synopsis: Bill Perkins, one of the company's founders, says Energia Fuels is currently working on financing. Perkins says the company has done a feasibility study, developed a business plan, and has offtake agreements for the fuel it produces. Once funding is in place, the company will move forward with construction.

New England:



Dirigo Bio-fuels LLC

Location: Bucksport, Maine

Target groundbreaking: June 2007

Feedstock: multi-feedstock

Capacity: 60 MMgy

Process technology: undeclared

Synopsis: The project has sustainable competitive advantages in feedstock procurement, methyl ester processing and bio-diesel offtake, according to CEO Scott Bush. The area is the heart of the U.S. heating oil market. The bio-diesel will likely enter that market, he says.

Loring BioEnergy LLC

Location: Limestone, Maine

Target groundbreaking: undeclared

Feedstock: undeclared



Capacity: 40 MMgy

Process technology: Shaw Group/Stone & Webster

Synopsis: The facility will be located on the former Loring Air Force Base site, according to Hayes Gahagan, an owner and local developer. Phase I will include cogeneration electricity and process steam production. The choice of feedstock will be an economic decision based on fuel prices and subsidies.

Maliseets Fuel LLC

Location: Houlton, Maine

Target groundbreaking: mid-2008

Feedstock: soy oil

Capacity: 3 MMgy to 5 MMgy

Process technology: Greenline Industries

Synopsis: Presque Isle, Maine-based Regent Associates is conducting feasibility studies on importing soy oil or crushing locally grown canola, according to CEO John Cancelarich. The project owners are the Houlton Band of Maliseets Indians. An advanced no-water technique will be used, he says.

Amelot Massachusetts

Location: Cape Cod, Massachusetts

Target groundbreaking: third quarter 2007

Feedstock: soy oil

Capacity: 2 MMgy

Process technology: Amelot Holdings Inc./Fitzsimmons Systems

Synopsis: The project is still in the permitting phase, according to Amelot Holdings Inc. President Alan Giles. Plans are to start production at 2 MMgy and scale up to 15 MMgy. Turning Mill Engineering Consultants in Sandwich, Mass., will provide a turnkey solution, including purchasing the technical equipment, managing the project and conducting all of the training, Giles says.

Northeast Bio-diesel Co. LLC

Location: Greenfield, Massachusetts

Target groundbreaking: spring 2007

Feedstock: yellow grease/used cooking oil

Capacity: 5 MMgy

Process technology: Nextgen Fuel Inc.

Synopsis: The project is consumer-owned by Co-op Power. The newly constructed facility will be in the Greenfield Industrial Park, according to CEO Larry Union.

Amelot New Hampshire

Location: Nashua, New Hampshire

Target groundbreaking: undeclared

Feedstock: soy oil

Capacity: 2 MMgy

Process technology: Amelot Holdings Inc./Fitzsimmons Systems

Synopsis: The project is still in the permitting phase, according to Amelot Holdings Inc. President Alan Giles. Plans are to start production at 2 MMgy and scale up to 15 MMgy. Turning Mill Engineering Consultants in Sandwich, Mass., will provide a turnkey solution, including purchasing the technical equipment, managing the project and conducting of all the training, Giles says.

Amelot Rhode Island

Location: Providence, Rhode Island

Target groundbreaking: third quarter 2007

Feedstock: soy oil

Capacity: 2 MMgy

Process technology: Amelot Holdings Inc./Fitzsimmons Systems

Synopsis: The project is still in the permitting phase, according to Alan Giles, president of Amelot Holdings Inc. Plans are to start production at 2 MMgy and scale up to 15 MMgy. Turning Mill Engineering Consultants in Sandwich, Mass., will provide a turnkey solution, including purchasing the technical equipment, managing the project and conducting all of the training, Giles says.

#### Middle Atlantic:



Garden State Bio-diesel Inc.

Location: Salem, New Jersey

Target groundbreaking: September 2007

Feedstock: soy oil/animal fats/yellow grease

Capacity: 30 MMgy

Process technology: undeclared

Synopsis: According to CEO John Cunningham, the facility will be built atop a landfill and use wind energy. A research and development building and a laboratory for commercial ASTM testing are also planned.

GS AgriFuels Corp.

Location: Fulton, New York

Target groundbreaking: fourth quarter 2007

Feedstock: undeclared

Capacity: 10 MMgy

Process technology: NextGen Fuel Inc.

Synopsis: The plan is being executed with a subsidiary of Homeland Energy Bio-fuels and will be one of the first commercial-scale bio-diesel facilities in the state, according to Chris Kennedy, project manager with GS Cleantech Corp., a sister company of GS AgriFuels.

Tri-State Bio-diesel Brooklyn

Location: Brooklyn, New York

Target groundbreaking: July 2007

Feedstock: waste cooking oil

Capacity: 5 MMgy

Process technology: undeclared

Synopsis: This will be new construction in the Columbia Street Marine Terminal. CEO Brent Baker says the company is pushing hard for a state mandate to have school buses and other fleets use bio-diesel.

East Penn Bio-fuels

Location: Kutztown, Pennsylvania

Target groundbreaking: third quarter 2007

Feedstock: soy oil

Capacity: 30 MMgy

Process technology: East Penn Bio-fuels

Synopsis: The project will be retrofitted to an area building, very likely next to railroad access, according to President Steven Moyer.

South Atlantic:



Atlantic Energy Development Inc.

Location: Jacksonville, Florida  
Target groundbreaking: undeclared  
Feedstock: waste grease  
Capacity: undeclared  
Process technology: Atlantic Energy Development  
Synopsis: Adam McGinnis and business partner John Baxter are building and comparing several processors, working with 2,000-gallon batches. They have a four-acre site where they intend to build once the design is completed, McGinnis says.

Green Wave Bio-fuels LLC  
Location: Florida  
Target groundbreaking: October 2007  
Feedstock: multi-feedstock  
Capacity: 10 MMgy  
Process technology: undeclared  
Synopsis: Green Wave Bio-fuels President Scott Zednek says the company is finalizing the process chemistry while working on financing and permitting for the project. It hopes to break ground this fall.

GreenWing Bio-diesel  
Location: Brandon, Florida  
Target groundbreaking: undeclared  
Feedstock: undeclared  
Capacity: undeclared  
Process technology: GreenWing Bio-diesel  
Synopsis: GreenWing Bio-diesel is a private plant used for testing and developing new technologies for biomass-to-bio-diesel production. The plant is processing one ton of biomass per day while testing the technology, Vice President Mark Riley says.

Lava Corp LLC  
Location: Florida  
Target groundbreaking: fall 2007  
Feedstock: waste vegetable oil  
Capacity: 1 MMgy to 5 MMgy  
Process technology: undeclared  
Synopsis: President and CEO, Orestes Lavass, says the company is considering sites and process technology for a pilot plant. If successfully it will consider building a 20 MMgy to 30 MMgy plant.

Southeast BioDiesel LLC  
Location: Sanford, Florida  
Target groundbreaking: summer 2007  
Feedstock: multi-feedstock  
Capacity: 10 MMgy  
Process technology: Southeast BioDiesel

Synopsis: Southeast BioDiesel started production of a facility in South Carolina in April. The company has plans to start on the Florida plant this summer and two other plants at undisclosed locations, according to Tom Gion, manager of research and development.

Chesapeake Bioenergy LLC

Location: Maryland

Target groundbreaking: fall 2007

Feedstock: soy oil

Capacity: 40 MMgy

Process technology: undeclared

Synopsis: Permits are ready to submit once the site selection is finalized. The project will include a crushing facility, according to Managing Partner George Robinson.

Smoky Mountain Bio-fuels Inc.

Location: North Carolina

Target groundbreaking: fall 2007

Feedstock: soy oil

Capacity: 10 MMgy to 15 MMgy

Process technology: Smoky Mountain Bio-fuels Inc.

Synopsis: Smoky Mountain Bio-fuels started production at a 1 MMgy plant at Dillsboro N.C., with its energy needs supplied by landfill methane. It has plans to expand that production to 4 MMgy to 5 MMgy, and build another 10 MMgy to 15 MMgy plant at an unnamed location.

American BioDiesel Corp.

Location: Orange, Virginia

Target groundbreaking: summer 2007

Feedstock: soy oil

Capacity: 3 MMgy

Process technology: Greenline Industries

Synopsis: Scott Johnson, founder and CEO, says the company was closing on the property in mid-April, and the site plan was about ready at press time. Starting with 3 MMgy, the company has room to double the capacity of its continuous flow production. A second company has been formed, called Restaurant Recyclers Inc., which is planning an oil recycling service.

Kanawha Bio-diesel

Location: Institute, West Virginia

Target groundbreaking: summer 2007

Feedstock: multi-feedstock

Capacity: 30 MMgy

Process technology: Emerald Bio-fuels

Synopsis: Emerald Bio-fuels LLC in Golf, Ill., is building this plant at the Bayer CropScience site, which has barge, rail and truck infrastructure in place, according to Emerald President David Drew.

Mountaineer Bio-fuels

Location: West Virginia

Target groundbreaking: undeclared

Feedstock: undeclared

Capacity: 20 MMgy

Process technology: Best Energies

Synopsis: This project is a spin-off of the Mid-Atlantic Technology, Research and Innovation Center, South Charleston's research center that helped in developing Best Energies' continuous flow bio-diesel production process. Mountaineer is investigating sites close to available feedstocks, according to Mountaineer President Keith Pauley.

Tampa Bio-fuels Corp.

Location: Charleston, West Virginia

Target groundbreaking: summer 2007

Feedstock: soy oil

Capacity: 11 MMgy

Process technology: Tampa Bio-fuels

Synopsis: Tampa Bio-fuels Owner Robert Kizziah says the company will begin construction of the plant once the permits are received. It expects to be in production this fall.

Canada:

Biostreet Canada

Location: Vegreville, Alberta

Target groundbreaking: March 2008

Feedstock: canola oil

Capacity: 180 MMly (48 MMgy)

Process technology: Desmet Ballestra

Synopsis: A site was recently finalized, and initial work is slated to begin this fall.

Engineering is ongoing. The project, which has been in the planning stages for three years, received a federal grant through the Bio-fuels Opportunities for Producers Initiative Program.

Canadian Bio-fuels Corp.

Location: Fort Saskatchewan, Alberta

Target groundbreaking: undeclared

Feedstock: canola oil

Capacity: 114 MMly (30 MMgy)

Process technology: undeclared

Synopsis: According to CEO Doug Hooper, this plant is on track for production in the fourth quarter of 2008. A joint feasibility study is being conducted with Bunge Canada, which would like to expand an existing canola crushing facility that would be collocated with Canadian Bio-fuels Corp.'s plant. The bio-diesel facility is expected to cost CAN\$65 million.

Green Machine Bio-fuels

Location: Delta, British Columbia

Target groundbreaking: summer 2007

Feedstock: multi-feedstock

Capacity: 1 MMly (264,000 gallons)

Process technology: undeclared

Synopsis: This project is looking to lock down a site with an existing housing structure, as most of the equipment has already been accumulated, according to President Kevin Hoechsmann. With very few bio-diesel plants in the lower mainland area, Hoechsmann says he hopes to have this refinery producing by the fall of 2007.

Advanced Bio-diesel Group

Location: Calgary, Alberta

Target groundbreaking: undeclared

Feedstock: undeclared

Capacity: 160 MMly (29 MMgy)

Process technology: Advanced Bio-diesel Group

Synopsis: A site has been selected for the project, although a company spokesman declined to name the specific location.

Appendix C

European Bio-diesel Process Equipment Manufacturers



ENERGEA Umwelttechnologie GmbH  
Inkustrasse 1-7  
3400 Klosterneuburg  
Austria  
Tel. +43 2243 26960  
Fax +43 2243 26960 40  
mail@energea.at  
<http://www.energea.at>

The following claims are made by Energea:

- Our CTER technology "Continuous Trans Esterification Reactor" opens a new chapter in bio-diesel production:
- With up to 50% lower costs of investment and practically 100% yield.
- Installations built in container sized modules, considerably less space requirement.
- Multi-feed-stock technology capable for processing vegetable oils/fats, used frying oil and animal fats/tallow.
- Standard fuel quality according to international standards such as EN 14214

“ENERGEA Environmental Technology is an innovative research company that follows a new approach in the field of bio-fuels. The range of our activities includes bio-fuels and natural solvents. The principles of sustainability and natural cycles are the driving force of our motivation. We aim to find intelligent and economically optimized solutions that are environmentally friendly and do not waste our resources. After all, environmental technology has to be economical, as well.”

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BDI - BioDiesel International AG  
Parkring 18  
A-8074 Grambach / Graz  
Austria  
Tel.: +43 (316) 4009-100  
[bdi@bdi-biodiesel.com](mailto:bdi@bdi-biodiesel.com)

Market and Technology Leader

BDI - BioDiesel International provides solutions for the industrial utilization of renewable resources.

The core-competences are technologies for the production of high-quality BioDiesel from different types of feedstock, surpassing the strictest product standards.

Environmental friendly with the best cost-value ratio.

As the market- and technology leader for building tailor-made and turn-key Multi-Feedstock BioDiesel plants we offer single source

- Research, Development, Consulting
- Project development, Management of Financing and Funding
- Authority-, Basic and Detail-Engineering
- Erection and Start-up
- After-Sales Services.

BDI – BioDiesel International builds milestone project in Hong Kong  
21.12.2007

(Grambach/Graz, 21.12.2007) BDI – BioDiesel International AG has received the order to build a BioDiesel plant in Hong Kong. The plant gives direction to sustainability and environment protection.

The plant situated at the Hong Kong port will set the pattern technologically and also in view of sustainable usage of residual materials. For the production capacity of 100 000 tons of BioDiesel per year mainly fat from waste water containing fat and oil (known as trap grease) from gastronomy and canteens as well as used cooking oils as feedstock. BDI therefore uses the extended Multi-Feedstock technology, which is capable of converting different types of feedstock. Trap grease as well as by-products from palm oil production for food and pharmaceutical industry (Palm Fatty Acid Distillate) cannot be converted by a traditional bio-diesel plant.

Three times Environment protection – disposal without causing damage to the environment, use of residual materials and driving environmentally friendly BioDiesel.

For the megacity in Asia this means the solution for waste disposal, as the dumping or even the forbidden disposal into the sea can be avoided. Furthermore, the reduction of emission is influenced positively. Thereby, disposal is three times as useful and environment friendly.

With this project, the company BDI continues its strategy with its Multi-Feedstock technology to produce environment friendly BioDiesel from different and difficult feedstock, which are at best available on the spot. Fats and oils out of wastewater are available in huge quantities in Hong Kong and it is a cheap “raw material”.

Hong Kong is worldwide the 29th BioDiesel plant by the Austrian technology and engineering company BDI.

About BDI – BioDiesel International AG

BDI – BioDiesel is one of the world’s leading suppliers of complete bio-diesel production plants. The services the company provides include plant planning, construction and start-up and subsequent after-sales service. BDI – BioDiesel has had in-depth experience with the production of bio-diesel and owns an extensive patent portfolio that has resulted from its in-house research and development activities. The company considers itself to be among the leading international technology suppliers on the market for the production of multi-feedstock plants that can manufacture bio-diesel on the basis of different raw materials, such as vegetable oils, waste edible oils and animal fats. BDI – BioDiesel International AG currently has more than 100 employees. The BDI – BioDiesel International AG shares (ISIN AT0000A02177) are listed in the Prime Standard/Regulated Market.

For further information please contact:

Heinrich Sigmund  
Head of Corporate Communication  
BDI - BioDiesel International AG  
Parkring 18  
A-8074 Grambach / Graz, Austria  
Tel: +43 / 316 / 4009-1528  
Fax: +43 / 316 / 4009-110  
www.bdi-biodiesel.com  
[heinrich.sigmund@bdi-biodiesel.com](mailto:heinrich.sigmund@bdi-biodiesel.com)

### **Ageratec**

st. Herrebro  
SE-60597 Norrköping  
SWEDEN Phone +4611335270  
Fax +4611170555  
Ageratec E-mail: [info@ageratec.com](mailto:info@ageratec.com)

#### Company information

Ageratec started as a small family business in Norrköping in 1996. The founders of the company are David and Gert Frykerås who had many years of experience in process industry and process automation. The idea was to create a fully automated machine that could be run by someone who was not a chemist. It had to be simple and take few man hours per litre of bio-diesel. Another goal was to create a flexible machine that could handle many different types of raw materials. Therefore even the first machine was made using batch technology. By running one separate batch at a time you can obtain a larger flexibility in your choice of raw materials.

The technique was developed during many years and the first prototype of the bio-diesel processor was ready by 1998. It was taken into production the same year at a farm outside Norrköping. Since then the technique has been improved and refined. The demand of alternative fuels has increased and the company has grown rapidly.

#### First delivery

The first bio-diesel processor was delivered to Norway in 2004. Since then the processor has been improved a lot. The biggest improvement is a new unique and patented technique to clean bio-diesel without water.

#### A growing company

Ageratec has 35 employees today and in October 2007, 65 units had been sold all over the world. Ageratec's largest markets for bio-diesel processors are Sweden, Poland and Australia. But mostly smaller machines are sold in Sweden. 95 percent of the total sales value goes to export markets. Every 7th to 10th day a bio-diesel Processor leaves Ageratec. The processors have been sold to all continents.

#### Manufacture

The processors are built in modern workshops just outside Norrköping with the latest production technology. All processors are carefully tested before delivery to obtain a smooth and fast installation and production start at the customers. During 2007 Ageratec has moved the production to a new larger workshop in order to increase the production capacity. With the new workshop comes a modern laboratory. Ageratec uses its laboratory mainly for research to improve the equipment and to be able to make bio-diesel with the smallest possible amount of chemicals added. The laboratory is also used to perform tests on customers' raw material and bio-diesel.

#### Business concept

Ageratec's business concept is to manufacture and deliver total solutions for bio-diesel production with a capacity of 2 000 to 340 000 litres per day. Ageratec will be able to deliver equipment from the processing of raw material all the way to finished bio-diesel. Customers are farmers, recycling companies, oil companies, road transport companies and different groups of financiers that want to produce bio-diesel. To ensure a technology that will stay on the cutting edge, providing the best possible solution for bio-diesel processing, Ageratec invests a lot in quality, product development and research.

#### Turnkey solutions

Flexibility is key at Ageratec. We're dedicated to help our customers find just the right solution for their particular needs. Ageratec offers complete bio-diesel solutions – everything needed to produce bio-diesel for use or sale. Some customers have only a need for our reliable and easy to operate turnkey processors. Some others have a need for the entire system of production – from the seed pressing equipment, treatment equipment quality testing, and project management.

At Ageratec, we offer complete solutions that can include all equipment and machinery necessary for an entire bio-diesel production business. Flexibility is key, and Ageratec is a reliable partner for your solution.

Our processors offer you the following advantages:

- Industrial quality or more
- Professional assembly and high finish
- Processors compliant with the highest European and World Safety and Health regulations
- ATEX and CE standard in every detail
- Batch System for flexibility in handling different feed stocks
- Produces bio-diesel that ongoing meets the ASTM D6751 and EN 14214 when the instructions and requirement of the oil and processor are followed
- Produces high quality bio-diesel out of all kinds of different vegetable oils, fresh and used as well as animal fats
- Additional Solutions available for high Free Fatty Acid (FFA) and impurities
- Automatic Control and Processing
- The processor chooses the most cost efficient recipe for the trans-esterification.
- Maneuvered by a touch screen
- Limited amount of time and labour needed for the process
- Process possible to control from distance
- Very clean water free process
- No waste products
- Low Energy Consumption
- Low noise level
- Takes up a small space only
- Possibilities for adjusted Processor capacities for project-and/or building reasons
- Low maintenance expenses of the units due to the use of high quality equipment , little moving parts and professional assembly
- Full access to personal support and service after installation to ensure an efficient and economical production
- Online support and service available
- Mounted on a metal frame for easy transportation and installation
- Low investment and production costs per litre bio-diesel

List of authorized distributors outside Sweden:

USA

Company: Ageratec North America, LLC

Contact person: Bo Gimvang

Agent for Oklahoma:

Company: Energy Answers Intl. Inc.

Contact person: John DeVine

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BioKing

Basic Information Company Name: BioKing

Business Type: Manufacturer

Product/Service: Bioking, Bio-diesel, Bio-diesel Equipment, Bio-diesel Reactors, Bio-diesel Plants,  
Jatropha, Oil Palm, Screw Oil Presses, Containerized Bio-diesel Plants

Company Address: Rangeerstraat 21, S-Gravenpolder, The Netherlands, Netherlands

No. of Employees: 51 - 100 People

Ownership & Year Established: 1985

Legal Representative/Business Owner: J. Van de Ven

Trade & Market Main Markets: Western Europe

Total Annual Sales Volume: Above US\$100 Million

Factory Information No. of R&D Staff: 21 - 30 People

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Proviron

G. Gilliotstraat 60, 2620 Hemiksem, Belgium

Tel +32 3 870 88 20

Fax +32 3 877 23 33

0425.193.758 - RPR Antwerpen

Site Oostende - Proviron Fine Chemicals nv

stationsstraat 123, 8400 Oostende, Belgium

Tel +32 59 56 21 00

Fax +32 59 56 21 33

0453.390.074 - RPR Oostende

Proviron America, Inc.

3807 South State Road 2, Friendly WV 26146, USA

Tel +1 304 652 69 32

Fax +1 304 652 25 86

Proviron

Building A Bridge Between Industry & Environment.

Proviron was established in 1977 as an engineering office, focusing on the development of new processes for environmental improvement. In 1983, Proviron started to construct its own process units thereby creating Proviron Industries.

Today, we focus on three branches of activities. Specialty chemicals, Bio-diesel and Custom Manufacturing for third parties. We are market leader for most of our products and are specialized in custom manufacturing. We develop our own processes starting from the basic design to the full implementation. A team of 340 employees, operating on three sites, is ready to get the job done.

Milestones:

1977 Proviron Engineering nv

1983 Proviron Industries nv

1992 Divestment of Proviron Engineering to Technip.

1996 A milestone year for Proviron.

Acquisition of UCB Fine Chemicals plant, Proviron Fine Chemicals nv.

Start of Proviron America Inc.

2001 Acquisition of Euroftal.

We also take over the central services provider of the site.

2002 Proviron celebrates its 25 years!

2005 The next generation is ready to take over.

Proviron has started the production of bio-diesel in Oostende, Belgium. The construction of the bio-diesel plant took 10 months. At full capacity the plant will employ 15 people directly and will produce 100 000 tonnes of bio-diesel per year. Proviron's research and engineering teams have developed the used production technology in-house. The investment is being made as a result of the Proviron strategy to develop a range of products out of renewable raw materials.

Please contact us for more information about this product.

Send a mail to [biodiesel@proviron.com](mailto:biodiesel@proviron.com)

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## Appendix D

### Federal Government Embassy, Commercial and Investment Officer Contacts

**Recommended Contacts for Support with Manufacturer Attraction and/or Manufacturing under License:**

**Regional Office of the Trade Commissioner Service in Canada**

400, 639 - 5th Avenue S.W.  
Calgary, Alberta T2P 0M9  
Tel: (403) 292-4575  
Fax: (403) 292-4578  
E-mail: [clgry@international.gc.ca](mailto:clgry@international.gc.ca)

Michael Willmott  
Trade Commissioner  
Tel: (403) 292-4577  
E-mail: [michael.willmott@international.gc.ca](mailto:michael.willmott@international.gc.ca)

Priority Sectors: Oil and Gas Equipment and Services, Alternative & Electrical Energy

Jessie Hislop  
Senior Trade Commissioner, Alberta  
Tel: (403) 292-6409  
E-mail: [jessie.hislop@international.gc.ca](mailto:jessie.hislop@international.gc.ca)

Responsibilities: DFAIT Alberta offices management, Trade Team Alberta Steering Committee, Policy and Secretariat, Ministerial visits, Ocean Technologies, Science and Technology, Alberta Service Industries and Capital Projects, Educational Services, Business and Professional Services

**Austria**

The Embassy of Canada to Austria  
Laurenerberg 2,  
A-1010 Vienna, Austria  
Tel: 011-43-1 531-38-3000  
Fax: 011-43-1 531-38-3906  
E-mail: [vienn-td@international.gc.ca](mailto:vienn-td@international.gc.ca)  
Web page address: <http://www.kanada.at>

Mrs. Pamela Hay  
Counsellor (Commercial)  
Senior Trade Commissioner  
Investment Promotion / Strategic Alliances  
Email: [pamela.hay@international.gc.ca](mailto:pamela.hay@international.gc.ca)

Mr. Philipp Wieltschnig  
Trade Commissioner  
Bio-Industries, Environmental Industries, Forest Industries, Investment Promotion / Strategic Alliances, Metals, Minerals and Related Equipment, Services and Technology  
Email: [philipp.wieltschnig@international.gc.ca](mailto:philipp.wieltschnig@international.gc.ca)

**Sweden**

The Embassy of Canada to Sweden  
Tegelbacken 4, 7th Floor  
Stockholm  
Sweden  
Tel: (011-46-8) 453-3000  
Fax: (011-46-8) 453-3016  
E-Mail: [stkhn-commerce@international.gc.ca](mailto:stkhn-commerce@international.gc.ca)  
Website: <http://www.infoexport.gc.ca/se>

Mr. Michael Siewecke  
Counsellor (Commercial)  
Senior Trade Commissioner  
Advanced Materials, Aerospace and Defence, Investment Promotion / Strategic Alliances, Ocean Technologies, Science and Technology, Service Industries and Capital Projects, Space, Tourism  
Email: [stkhn-commerce@international.gc.ca](mailto:stkhn-commerce@international.gc.ca)

Mr.

Christian Ekstrom  
Trade Commissioner  
Arts and Cultural Industries, Bio-Industries, Health Industries, Science and Technology  
Email: [stkhn-commerce@international.gc.ca](mailto:stkhn-commerce@international.gc.ca)

Ms. Annika Malmberg  
Trade Commissioner Assistant  
Agriculture, Food and Beverages, Bio-Industries, Consumer Products, Environmental Industries, Fish and Seafood Products, Forest Industries, Health Industries



Email: [stkhn-commerce@international.gc.ca](mailto:stkhn-commerce@international.gc.ca)

**Netherlands**

The Embassy of Canada to the Netherlands  
Sophialaan 7  
2514 JP The Hague  
Netherlands  
Tel: (011-31-70) 311-1600  
Fax: (011-31-70) 311-1682  
E-Mail: [hague-td@international.gc.ca](mailto:hague-td@international.gc.ca)  
Website: <http://www.canada.nl>

Mr. David McNamara  
Counsellor  
Senior Trade Commissioner  
Aerospace and Defence, Investment Promotion / Strategic Alliances  
Email: [hague-td@international.gc.ca](mailto:hague-td@international.gc.ca)

Sarah Stinson  
Second Secretary  
Trade Commissioner  
Bio-Industries, Information and Communications Technologies, Science and Technology  
Email: [hague-td@international.gc.ca](mailto:hague-td@international.gc.ca)

**Belgium**

The Embassy of Canada to Belgium  
2, Avenue de Tervuren  
1040 Brussels  
Belgium  
Tel: (011-32-2) 741-0620  
Fax: (011-32-2) 741-0606  
E-Mail: [bru-commerce@international.gc.ca](mailto:bru-commerce@international.gc.ca)  
Website: <http://www.infoexport.gc.ca/be>

Mr. Francis Keymolen  
Trade Commissioner  
Aboriginal Products, Services and Technologies, Agriculture, Food and Beverages, Arts and Cultural Industries, Bio-Industries, Building Products, Consumer Products, Fish and Seafood Products, Forest Industries, Investment Promotion / Strategic Alliances  
Email: [francis.keymolen@international.gc.ca](mailto:francis.keymolen@international.gc.ca)

Mrs. Fabienne De Kimpe  
Trade Commissioner  
Advanced Manufacturing Technologies, Advanced Materials, Agricultural Technology and Equipment, Automotive, Bio-Industries, Chemicals, Electric Power Equipment and Services, Environmental Industries, Investment Promotion / Strategic Alliances, Metals, Minerals and Related Equipment, Services and Technology, Ocean Technologies, Oil and Gas Equipment and Services, Plastics, Rail and Urban Transit  
Email: [fabienne.de-kimpe@international.gc.ca](mailto:fabienne.de-kimpe@international.gc.ca)

**The Embassy of Canada to Italy**

Villa Grazioli, Via Salaria 243 ,  
Rome, RM, 00199, Italy  
Tel: (011-39) 06-85.444.1  
Fax: (011-39) 06-85.444.3915  
E-Mail: [ital-td@international.gc.ca](mailto:ital-td@international.gc.ca)

Mr. Khawar Nasim  
Minister Counsellor  
Senior Trade Commissioner  
Email: [ital-td@international.gc.ca](mailto:ital-td@international.gc.ca)

Ms. Patrizia Giuliotti  
Trade Commissioner  
Environmental Industries, Market Access  
Email: [ital-td@international.gc.ca](mailto:ital-td@international.gc.ca)

**The Consulate of Canada, Philadelphia**

1650 Market Street, 36th Floor  
Philadelphia, PA  
United States 19103  
Tel: 267-207-2721  
Fax: 267-207-2722  
E-Mail: [phila@international.gc.ca](mailto:phila@international.gc.ca)  
Website: <http://www.dfait-maeci.gc.ca/can-am/philadelphia/>

Mr. David Weiner  
Consul  
Senior Trade Commissioner  
Investment Promotion / Strategic Alliances  
Email: [david.weiner@international.gc.ca](mailto:david.weiner@international.gc.ca)

**The Consulate General of Canada, Miami**

200 South Biscayne Boulevard Suite 1600,  
Miami, Florida, 33131, United States of America  
Tel: (305) 579-1600  
Fax: (305) 579-1631  
E-Mail: [infocentre.miami@international.gc.ca](mailto:infocentre.miami@international.gc.ca)  
Web Page Address (URL): <http://www.miami.gc.ca>

Ms. Marcy Grossman  
Consul General  
Email: [marcy.grossman@international.gc.ca](mailto:marcy.grossman@international.gc.ca)

Mr. Jan Scazighino  
Consul  
Senior Trade Commissioner  
Market Access  
Email: [infocentre.miami@international.gc.ca](mailto:infocentre.miami@international.gc.ca)

Ms. H el ene Forest  
Consul  
Trade Commissioner  
Bio-Industries, Health Industries, Investment Promotion / Strategic Alliances  
Email: [infocentre.miami@international.gc.ca](mailto:infocentre.miami@international.gc.ca)

**The Consulate General of Canada, New York**

1251 Ave. of the Americas ,  
New York, New York, 10020-1175, United States of America  
Tel:(212) 596-1650  
Fax (212) 596-1793  
E-mail:[cngny-td@international.gc.ca](mailto:cngny-td@international.gc.ca)<http://www.newyork.gc.ca>  
Territories/Responsibilities: Eastern and Southern parts of New York State, Connecticut, New Jersey; Other: Bermuda

Nathalie B echamp  
Consul  
Senior Trade Commissioner  
Email: [cngny-td@international.gc.ca](mailto:cngny-td@international.gc.ca)

Karen Kennedy  
Consul  
Trade Commissioner -Investment  
Investment Promotion / Strategic Alliances, Science and Technology  
Email: [cngny-ti@international.gc.ca](mailto:cngny-ti@international.gc.ca)

**The Consulate General of Canada, Dallas**

750 North St. Paul Street Suite 1700,  
Dallas, Texas, 75201, United States of America  
Tel: (214) 922-9806  
Fax: (214) 922-9815  
E-Mail:[dalas-td@international.gc.ca](mailto:dalas-td@international.gc.ca)  
Web Page Address (URL):<http://www.can-am.gc.ca/dallas>  
Territories/Responsibilities: Texas, Arkansas, Kansas, Louisiana, Oklahoma

Mr. Norris Pettis  
Consul General  
Email: [infocentre.dallas@international.gc.ca](mailto:infocentre.dallas@international.gc.ca)

Mr. Rod Johnson  
Senior Trade Commissioner  
Email: [infocentre.dallas@international.gc.ca](mailto:infocentre.dallas@international.gc.ca)

Mr. David Dix  
Consul and Trade Commissioner  
Trade Commissioner  
Science and Technology  
Email: [infocentre.dallas@international.gc.ca](mailto:infocentre.dallas@international.gc.ca)

Ms. Diane Bellon  
Consul and Trade Commissioner  
Trade Commissioner  
Investment Promotion / Strategic Alliances  
Email: [infocentre.dallas@international.gc.ca](mailto:infocentre.dallas@international.gc.ca)

**The Consulate General of Canada, Chicago**

180 North Stetson Avenue, Suite 2400 ,  
Chicago, Illinois, 60601, United States of America  
Tel: (312) 616-1860  
Fax: (312) 616-1878  
E-Mail: [chcgo-td@international.gc.ca](mailto:chcgo-td@international.gc.ca)  
Web Page Address (URL): <http://www.international.gc.ca/chicago>  
Territories/Responsibilities: Illinois, Missouri, Wisconsin

Mr. Maurice Egan  
Deputy Consul General  
Senior Trade Commissioner  
Economic and Trade Policy, Market Access  
Email: [maurice.egan@international.gc.ca](mailto:maurice.egan@international.gc.ca)

Ms. Sidney Salvadori  
Trade Commissioner  
Bio-Industries, Environmental Industries, Government Procurement, Health Industries, Information  
and Communications Technologies, Market Access  
Email: [sidney.salvadori@international.gc.ca](mailto:sidney.salvadori@international.gc.ca)

Appendix E

US Bio-diesel Process Technology Firms

Capital Technologies International

700 Technology Drive

Pittsburgh PA 15219

Phone: 412-268-1000

Fax: 412-268-4060

[info@capital-technologies.com](mailto:info@capital-technologies.com)

[www.capital-technologies.com](http://www.capital-technologies.com)

Capital Technologies, Inc is a venture funding and commercialization firm originating from Pittsburgh Pennsylvania, specializing in bringing to market advanced fuel technologies and processes in petro-chemicals and bio-fuels.

Capital Technologies' Bio-diesel technology makes the following claims;

Processing costs less than 20 cents/gallon  
Scalable - 5 million gallons and up  
Preassembled, modular and skid mounted  
No water wash needed  
Processes 0-100% free fatty acids  
No handling of caustic materials or acids

Xenerga, Inc.

7075 Kingspointe Parkway · Suite 1  
Orlando, FL 32819  
P: (407) 996-5545  
F: (407) 996-5551  
E: [inquiries@xenerga.com](mailto:inquiries@xenerga.com)  
[www.xenerga.com](http://www.xenerga.com)

Xenerga is focused on expanding profitable BioDiesel feedstocks and production facilities on a local basis throughout the world.

It is Xenerga's firm belief that in order to help our planet overcome the many physical pressures that threaten its well-being, such as global warming, products must be found that make financial sense for manufacturers and users alike.

Executives of Xenerga have been involved in the manufacture and installation of over 160 BioDiesel plants throughout the world.

Xenerga is using this unrivalled experience to expand a network of BioDiesel facilities in key markets throughout the world by partnering with individuals and companies who share the alternative energy vision.

Instead of focusing on building huge BioDiesel production facilities, Xenerga has created a replicable 5 million gallon per year facility that can be set-up wherever the feedstock exists, thereby reducing many of the distribution costs and associated problems.

Xenerga believes that the key to the future of BioDiesel is low cost feedstock... and this is where years of R&D have paid off.

Xenerga has feedstock throughout the world including Algae, Jatropha and Yellow Grease.

NextGen Fuels Inc

Corporate Offices

One Penn Plaza, Suite 1612

New York, New York 10119

Phone: 212-994-5374

Fax: 212-572-6336

Hours of Operation 9:00 a.m. - 5:00 p.m. EST, Monday through Friday

Email

for general inquiries [info@gs-agrifuels.com](mailto:info@gs-agrifuels.com) or [sales@gs-agrifuels.com](mailto:sales@gs-agrifuels.com)

[www.nextgenfuel.com](http://www.nextgenfuel.com)

NextGen Fuel Inc, a GS AgriFuels Corporation company, is a producer of modular, continuous-flow multi-feedstock bio-diesel process equipment based on NextGen's patent-pending process intensification technology.

We provide bio-diesel process technology that utilizes innovative and proprietary process intensification techniques to accelerate and enhance traditional bio-diesel reaction kinetics, thus decreasing process time, reducing energy and raw material needs, and increasing product quality.

Our current focus is on the as of yet untapped domestic and international market for mid-sized bio-diesel production facilities. The bio-diesel industry is facing increasing challenges from high soybean oil and other refined vegetable oil prices. For bio-diesel entrepreneurs and their financing sources, this risk increases significantly with the size of their intended bio-diesel production facility. Smaller plants simply have smaller risk profiles and are inherently easier for entrepreneurs to finance and operate.

The continuous flow capabilities of the technology translate to substantially lower construction costs because less equipment and raw materials are needed versus batch plants, and the modular design allows NextGen plants to be cost-competitive with the total capital costs of larger plants.

In addition, NextGen's modular, continuous-flow process enables the producer the ability to add additional capacity to a developed site with relative ease. It can be as simple as building an additional production line and plugging it into the prior line(s). We intend to focus on the continued deployment and installation of NextGen Fuel, Inc. bio-diesel process technology skids and increase our market share into the as of yet untapped small to medium size bio-diesel production industry.

The Shaw Group Inc.

4171 Essen Lane

Baton Rouge, Louisiana 70809

USA

Main Phone: 225.932.2500

Web Site: <http://www.shawgrp.com/>

The Shaw Group Inc. was founded in 1987 by Jim Bernhard, our Chairman, President, and Chief Executive Officer, and two colleagues as a fabrication shop in Baton Rouge, Louisiana. Driven by leaders with bold vision and a strong entrepreneurial spirit, the company has evolved into a diverse engineering, construction, technology, fabrication, environmental and industrial services organization with 27,000 employees in strategic locations around the world.

Throughout our rapid growth, our core values have remained constant-honesty in decision-making, personal responsibility and accountability, and leadership by example. These principles are at the heart of our ability to create and respond to market opportunities and have fueled our dramatic expansion.

BEST Energies, Inc.  
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BEST Energies, Inc. is focused on developing essential technologies which will add value to all new and existing bio-fuel production facilities. Our proprietary technologies are directed at the integration of processes for the development of an integrated bio-refinery model. This distributed model, close to sources of biomass and consumption, will strive to efficiently maximize all of the facilities' existing and available resources.

The BEST Energies family of companies offers economically viable answers to the interrelated problems of declining oil and gas reserves, green house gas production and global warming. By combining our proprietary, leading edge biotechnologies with proven production solutions we are building distributed, clean energy production networks for our customers. Our solutions, all based on renewable bio-resources, help the environment through managing bio-waste, eliminating greenhouse gases and providing effective carbon sequestration.

BEST BioDiesel, Inc.

BEST BioDiesel, Inc. is a leader in the development of proprietary technologies and distributed production solutions that increase reaction rate over industry standard bio-diesel systems. BEST BioDiesel offers continuous flow decanting, improved washing processes, enhanced recovery of methanol and world class process water sewer discharge levels. Our solutions increase production volume of existing facilities and decrease the



footprint of new facilities, significantly reducing construction timelines and expansion costs.

BEST BioDiesel is a technology company

BEST BioDiesel holds a portfolio of proprietary key technologies that significantly improve the economics of bio-diesel. Our bio-diesel technologies are essential for the creation of clean energy alternatives to traditional oil based fuels. By bringing together the leading chemical processing experts from around the world, with an average of 30 years of research and development experience each, we have created a rich, patentable pipeline of productivity and efficiency enhancement and 1st mover products.

We are part of the BEST Energies family of companies which offer economically viable answers to the interrelated problems of declining oil and gas reserves, greenhouse gas production and global warming. By combining our proprietary technologies with proven production solutions we are building distributed, clean energy production networks for our customers. Our solutions, all focused on using renewable bio-based resources, are helping the environment through proactively managing under-utilized biomass streams, limiting CO2 greenhouse gases and providing effective carbon sequestration.

BEST BioDiesel is a solutions company

We provide integrated, scalable and distributed bio-diesel production solutions. Our solutions increase reaction rate over industry standard bio-diesel systems, increasing the throughput and profitability of existing production facilities and reducing the need for expanded infrastructure. The better efficiency also allows a smaller footprint for new production facilities, reducing construction costs and time.

A key to BEST BioDiesel's better production solutions is fast phase separation through clean and controlled chemistry within the operations. This proprietary technology creates distinct layering in separation at higher speeds-98% separation in 2 hours. Our technology allows for negligible inputs of catalysts, eliminating much of the downstream efforts for polishing steps to recover catalyst and remove water contaminants. By achieving clean phase separations we are actively working to optimize blends which will be more robust against the issues of winterization.

The higher efficiency of BEST BioDiesel's technology permits the use of drastically smaller equipment which lends itself to off site construction for many of the operating components. By focusing on skid-mounted production units, it is feasible to deliver on site for more immediate production. Existing facilities can be retrofit with minimal operational interruption. These units can be uniformly manufactured, lowering costs, increasing quality and standardizing production.

BEST BioDiesel production solutions are scalable to meet the needs of existing and new production systems. We have an aggressive development path, actively addressing the use of lower grade, high free fatty acid (FFA) materials through the use of our clean chemistry design. This process permits the use of low grade vegetable oils and animal

fats as a wider and more economical selection of feed stocks. Our production solutions will provide for reduced upfront methanol use and enhanced recovery. With the goal of closing the loop of all material flows in the system our exclusive glycerin combustion technology makes possible the use of the glycerin byproduct as clean combustible fuel. BEST BioDiesel is creating the bio-diesel future

BEST BioDiesel through research, acquisition and joint venture, is uniquely positioned to be the technological leader in all areas of bio-diesel production. As global concerns over declining oil and gas reserves, greenhouse gas production and global warming increase, our economically viable answers will continue to grow in value. The future of bio-diesel will be determined by the controllers of feed stocks and the creators of distributed production systems close to the source of those feed stocks. Because our solutions are focused on renewable bio-based resources our customers will benefit from a rich source of local and predictable energy generation.

BEST BioDiesel is creating a great company

As a technological leader with high growth potential, BEST BioDiesel is a great place to invest. We are well positioned to win the current land grab in next-generation fuels and to develop the essential technologies for the bio-fuels of the future. Our future is being built on our rich source of patentable technologies, bio-fuel solutions for the greenhouse challenge as well as our pipeline of productivity and efficiency enhancements and 1st mover products. A sustainable business model and partnering with complementary industry partners are positioning BEST Bio-diesel to be the market leader. We offer a valuable investment in a high growth market with excellent near term return potential.

With BEST BioDiesel, you can do well while doing good.

Appendix F  
SAAEP Municipal Contacts for Fuel Consumption Information

**Chief Administrator List**

<b>Name</b>	<b>Municipality</b>	<b>Address</b>	<b>Phone</b>	<b>Fax</b>
Gordon Lundy	Blairmore.	PO Box 1000 Blairmore., AB T0K 0E0	562-8833	563-5474 <a href="mailto:cao@crownsnestpass.com">cao@crownsnestpass.com</a>
Barry Elliot (after October election)	Fort Macleod	PO Box 1420 Fort Macleod, AB T0L 0Z0	553-4425	553-2426 <a href="mailto:edo@townfortmacleod.com">edo@townfortmacleod.com</a> <a href="mailto:manager@fortmacleod.com">manager@fortmacleod.com</a>
Kris Holbeck	Town of Claresholm	PO Box 1000 Claresholm, AB T0L 0T0	625-3381	625-3869 <a href="mailto:kris.holbeck@townofclaresholm.com">kris.holbeck@townofclaresholm.com</a>
Laurie Wilgosh	Cowley	PO Box 40 Cowley, AB T0K 0P0	628-3808	628-2807 <a href="mailto:wilgosh@shaw.ca">wilgosh@shaw.ca</a>
Murray Millward	Cardston County	PO Box 580 Cardston, AB T0K 0K0	653-4977	653-1126 <a href="mailto:murray@cardstoncounty.com">murray@cardstoncounty.com</a>
Greg Burt	Town of Cardston	PO Box 280 Cardston, AB T0K 0K0	653-3366	653-2499 <a href="mailto:greg@cardston.ca">greg@cardston.ca</a>
Brad Salmon	Glenwood	PO Box 1084 Glenwood, AB T0K 2R0	626-3233	626-3234 <a href="mailto:admin@Glenwood.ca">admin@Glenwood.ca</a>
Shelley Henderson	Granum	PO Box 88 Granum, AB T0L 1A0	687-3822	687-2285 <a href="mailto:cao.townofgranum@shaw.ca">cao.townofgranum@shaw.ca</a>
Boyd Campbell	Hill Spring	PO Box 40 Hill Spring, AB	626-3876	626-2333 <a href="mailto:office@hillspring.ca">office@hillspring.ca</a>

Opportunity Identification for the Bio-fuel Industry in  
Southwest and South-central Alberta

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		T0K 1E0	
Fran Kornfeld	Pincher Creek	PO Box 159 Pincher Creek, AB T0K 1W0	627-3156 627-4784 <a href="mailto:fkornfeld@pinchercreek.ca">fkornfeld@pinchercreek.ca</a>
Loretta Thompson	Pincher Creek	PO Box 279 Pincher Creek, AB T0K 1W0	627-3130 627-5070 <a href="mailto:ltompson@mdpinchercreek.ab.ca">ltompson@mdpinchercreek.ab.ca</a>
Sheryl Fath	Stavely	PO Box 249 Stavely, AB T0L 1Z0	549-3761 549-3743 <a href="mailto:stavely@platinum.ca">stavely@platinum.ca</a>
Barney Reeves Waterton 859-2254 Calgary 288-8079 Cell 627-8047 Edmonton (780) 422-8098	Waterton	Municipal Services Branch  17th Floor 10155 - 102 St. Edmonton, AB T5J 4L4	<a href="mailto:rick.grimson@gov.ab.ca">rick.grimson@gov.ab.ca</a>
Cindy Vizzutti	Willow Creek	PO Box 330 Claresholm, AB T0L 0T0	625-3351 625-3886 <a href="mailto:cindy@mdwillowcreek.com">cindy@mdwillowcreek.com</a>
Shelley Holden	Village of Barons	PO Box 129 Barons, AB T0L 0G0	757-3633 757-3633 <a href="mailto:barons@telusplanet.net">barons@telusplanet.net</a>
Frank Harley	Blood Tribe Council	PO Box 350 Standoff, AB T0L 1Y0	308-2194 737-2116 <a href="mailto:hfrank@bloodtribe.org">hfrank@bloodtribe.org</a>
Shelley Snisarenko	Village of Carmangay	PO Box 130 Carmangay, AB T0L 0N0	643-3595 643-2007 <a href="mailto:villagec@telusplanet.net">villagec@telusplanet.net</a>
Melissa Rhodes	Village of Champion	PO Box 367 Champion, AB T0L 0R0	897-3833 897-2250 <a href="mailto:champvil@wildroseinternet.ca">champvil@wildroseinternet.ca</a>
Leo Ludwig	Town of Coaldale	1920 - 17 St. Coaldale, AB T1M 1M1	345-1300 345-1311 <a href="mailto:lludwig@coaldale.ca">lludwig@coaldale.ca</a>
Kim Hauta	Town of Coalhurst	PO Box 456 Coalhurst, AB	381-3033 381-2924 <a href="mailto:mwilliams@town.coalhurst.ab.ca">mwilliams@town.coalhurst.ab.ca</a>

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		T0L 0V0		
Lori Rolf	Village of Coutts	PO Box 236 Coutts, AB T0K 0N0	344-3848	344-4360 <a href="mailto:vilcouth@telusplanet.net">vilcouth@telusplanet.net</a>
Dennis Shigematsu	County of Lethbridge	#100, 905-4th Ave S Lethbridge, AB T1J 4E4	328-5525	328-5602 <a href="mailto:mailbox@county.lethbridge.ab.ca">mailbox@county.lethbridge.ab.ca</a>
Wade Alston	Town of Magrath	PO Box 520 Magrath, AB T0K 1J0	758-3212	758-6333 <a href="mailto:Magrath1@telusplanet.net">Magrath1@telusplanet.net</a>
Shawn Hathaway	Town of Milk River	PO Box 270 Milk River, AB T0K 1M0	647-3773	647-3772 <a href="mailto:main@milkriver.ca">main@milkriver.ca</a>
Ginger Deitz	Village of Milo	PO Box 65 Milo, AB T0L 1L0	599-3883	599-2201 <a href="mailto:vilmilo@wildroseinternet.ca">vilmilo@wildroseinternet.ca</a>
Kirk Hoffman	Village of Nobleford	PO Box 67 Nobleford, AB T0L 1S0	824-3555	824-3555 <a href="mailto:admin@village.nobleford.ab.ca">admin@village.nobleford.ab.ca</a>
Audrey Mortenson	Town of Picture Butte	PO Box 670 Picture Butte, AB T0K 1V0	732-4482	732-4334 <a href="mailto:info@picturebutte.ca">info@picturebutte.ca</a>
Scott Barton	Town of Raymond	PO Box 629 Raymond, AB T0K 2S0	752-3322	752-4379 <a href="mailto:admin@townofraymond.com">admin@townofraymond.com</a>
Alcide Cloutier	Town of Vulcan	PO Box 360 Vulcan, AB T0L 2B0	485-2417	485-2914 <a href="mailto:Vulcan@telus.net">Vulcan@telus.net</a>
Gary Buchanan	County of Vulcan	PO Box 180 Vulcan, AB T0L 2B0	485-2241	485-2920 <a href="mailto:countyadmin@vulcancounty.ab.ca">countyadmin@vulcancounty.ab.ca</a>
Scott Barton	Village of Stirling	PO Box 360 Stirling, AB T0K 2E0	756-3379	756-2262 <a href="mailto:Stirling@telus.net">Stirling@telus.net</a>
Gary Hudson	Town of Taber	4900A - 50 Street Taber, AB	223-5504	223-5530 <a href="mailto:town@taber.ca">town@taber.ca</a>

Opportunity Identification for the Bio-fuel Industry in  
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		T1G 1T1	
Derric Krizsan	Municipal District of Taber	4900B- 50 Street Taber, AB T1G 1T2	223-3541 223-1799 <a href="mailto:mdtaber@telusplanet.net">mdtaber@telusplanet.net</a>
Allan Romeril	County of Warner	PO Box 90 Warner, AB T0K 2L0	642-3635 642-3631 <a href="mailto:County5@countyofwarner5.ab.ca">County5@countyofwarner5.ab.ca</a>
Troy Orman	Town of Vauxhall	PO Box 509 Vauxhall, AB T0K 2K0	654-2174 654-4110 <a href="mailto:torman@town.vauxhall.ab.ca">torman@town.vauxhall.ab.ca</a>
Kim Dalton	Village of Warner	PO Box 88 Warner, AB T0K 2L0	642-3877 642-2011 <a href="mailto:vowarner@telus.net">vowarner@telus.net</a>