

REPORT

ETHANOL STUDY TOUR

USA & CANADA

18 JULY – 4 AUGUST 2006

BY

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EXECUTIVE SUMMARY

KEY ISSUES

1. Mandating levels of ethanol and biofuels at a State level was the key driver to development of the industry, forcing the fuel companies to on-sell the product through their distribution level.
2. The proactive stance of farmer organisations, State politicians and Federal Legislators to move towards a renewable energy source in biofuels was profoundly obvious with the recognition of health, environmental and regional investment outcomes..
3. USA Government recognition of health and environmental problems with fossil fuels and also an attempt to move away from Middle Eastern oil supplies towards sustainable domestic biofuels.
4. Feedlotters are embracing the ethanol industry as a source of feedstock.
5. Many ethanol and biodiesel plants are fully or partly farmer owned hence obtaining the value add to their crop production of corn and soybean.
6. Positive impacts being felt on corn market and also from the European demand for soybeans on the soybean price from increases in biofuel production.
7. Enormous local economic impact from the development of biofuel plants on communities.

Front Range Energy Ethanol Plant - Colorado

I visited Front Range Energy Ethanol Plant with Bad Olsen located at 31375 Great Western Drive – Windsor – Colorado.

I then inspected 30,000 head of cattle and feedlot that fed wet distillers grain (the residue of the ethanol production process) as 25 % of the feed ration. It was reported to me that there had been a 20% improvement in efficiency.

- Approximately $\frac{1}{3}$ of tonnage going into the production of ethanol is a by product either as wet or dry distiller's grain that is high in protein.
- The feedlot industry in the US has become an integral part of the ethanol industry and uses the distiller's grain as a source of protein in the feed ration.
- This is in stark contrast to the current position of the Australian Lot feeders Association who oppose the Government encouragement of the production of ethanol.

Front Range Energy, LLC was founded in July of 2004 to construct and operate a state-of-the-art 40 million gallon dry mill ethanol plant in Weld County Colorado. Front Range Energy, LLC was formed by Dan A. Sanders and Dan R. Sanders of Gresham, Oregon. After several feasibility and site studies a final site was located off of The Great Western Railroad's short line in Windsor, Colorado.

Front Range Energy, LLC completed permitting and broke ground in September of 2005 and started producing ethanol in May of 2006

The Front Range Energy Plant will process about 14 million bushels of corn into 40 million gallons of ethanol and approximately 120,000 tonnes of distiller's grains annually.



FRONT RANGE ENERGY PLANT

Midwest Renewable Energy – Sutherland – Nebraska.

I inspected the Midwest Renewable Energy company in Sutherland, Nebraska and discussed the early teething problems of the industry. In the past this plant has experienced financial difficulties.

The plant is currently under new ownership and with the mandating of E10 and the increases in oil prices the company is planning to build two more plants adjacent to the existing plant.

- Mill process – dry.
- Feedstock - corn
- Permanent employees – 30

The township of Sutherland with a population of under 1000 people along with the surrounding corn growers have received an enormous boost to their viability through the recent improvements to the plant.

Luverne Ethanol Plant – Agri - Energy - LLC

I met with local farmers (corn and soybean growers), agri-politicians, community leaders and investors in local ethanol plants.

The Luverne plant is a limited liability company with mainly farmer shareholders with the debt portion funded at a local banking level.

I spent a considerable time inspecting the plant and discussed the business and financial planning of the plant and the further investment by the company into wind energy turbines.

The ethanol plant in Luverne, Minnesota was initiated in 1995 through discussions that included a design and engineering firm, city officials and interested farmers. With encouragement and informational support from the design firm, logistical support from the city and innumerable hours of volunteer time from the farmers a fledgling, new generation cooperative was formed. An equity drive that lasted well over a year resulted in the formation of CORN-erStone Farmers Cooperative and a pool of equity that was big enough to build a new plant.

Several months of negotiations resulted in the formation of AGRI-ENERGY, LLC. The new LLC was composed of an ownership blend that resulted in CORN-erStone owning about 64% of the LLC and the remaining ownership split evenly between two investors that both happened to have corporate legal structure. The City of Luverne came forward with a tax increment – financing program that made it possible to secure financing through a central Minnesota banking company. Local banks also assumed some sub-ordinate debt to complete the project.

Construction proceeded in August of 1997 with completion in the fall of 1998. The plant has operated profitably since. After some equity transfer the ownership is now at about 70% CORN-er Stone, 22% one investor and 8% the other investor partner.

This ethanol plant has been successful because of a cooperative, two corporations and a city government, with the assistance of a management company, were able to use a state program to help secure private financing so the plant could be built!

Meeting with Minnesota Corn Growers Association:

I met with Bruce Stockman Executive Director of the MCGA at 738 1st Avenue East Shakopee Minnesota and Staci Bohlew the National Issues Specialist and the Minnesota Farm Bureau Federation. Both Bruce and Staci have been leaders in the ethanol debate in the U.S. for that past 16 years and have made enormous contribution to the National debate.

Key issues included;

- The education process initiated by the corn growers to alert the community of the health impacts of fine particle emissions.
- The lobbying process pursued to gain a 10% mandate at a State Government level.
- The support given by the Federal Government in terms of fuel quality and standards through the Clean Air Legislation.
- The phase in arrangements applied over 4 years to achieve a state mandate of 10% ethanol in petrol.
 1. Year 1 Winter in major cities.
 2. Year 2 All year major cities.
 3. Year 3 Outskirts of major cities
 4. Year 4 Total State area.

Minnesota is aiming to achieve mandatory E20 fuel by 2012 will require Federal approved.

- The excise tax credit is applied at the rate of 51c/100% alcohol / gal hence,
E10.....5.1c/gal
E85.....43c/gal

Minnesota Soybean Processors Brewster (MN)

Minnesota Soybean Processors (MnSP) is a new start up company. A group of farmers conceived the idea of a farmer owned and controlled soybean plant while waiting in elevator lines to deliver grain. The group expanded over the winter of 1998, formally organized and incorporated as a 308A cooperative on May 3, 1999.

MnSP is a farmer owned, new generation, value-added, closed cooperative, which will take soybeans to the next level of value. This proposed project will process 100,000 bushels of soybeans per day. We are currently selling membership to farmers interested in moving to the next step beyond just growing the crop.

The Minnesota 2 percent Biodiesel Mandate became law two years ago on March 15, 2002. It requires that all of the diesel fuel sold in the state contain at least a 2 percent blend of biodiesel.

MSCA President Ron Jacobson recently stated that."Biodiesel is a clean fuel that significantly reduces almost all regulated pollutants, including carbon monoxide and

particulate matter, and the compounds in diesel exhaust that have the potential to cause cancer and lung disease. Beyond the human health benefit, biodiesel improves the environment by reducing noxious emissions and also provides economic development opportunities in greater Minnesota."

It has been reported that the MnSP plant will produce approximately 60 million gallons of oil. About 30 million gallons will go to the bio-diesel plant. In other words, there is an additional 30 million gallons that we could sell to the industry.

Lloydminster Ethanol Plant

Visited Lloydminster Ethanol Plant located just inside the Saskatchewan border developed by Husky Energy.

The feedstock supply will be based on low protein feed-wheat. The logic behind the location of the plant in a weather damage prone wheat growing area may have interesting ramifications in future for the Australia wheat industry.

The premium price wheat in Australia is the high protein wheats which command higher prices on the export market. These wheats can be subject to protein loss through rainfall when the crop is ripe with consequent heavy downgrading in prices and also require high rates of nitrogen fertilizers.

There may be some logic in developing varieties that are high in starch content but low in protein and hence not subject to weather extremes.

Ethanol production is based on fermentation of the starch within the grain which is not impacted adversely by weather.

Husky is a pioneer in the production and marketing of ethanol-blended fuels, and has plans to become Western Canada's largest ethanol producer. The Company's first ethanol plant was built in 1981 in Minnedosa, Manitoba and produces 10 million litres of ethanol for fuel and industrial use, primarily from wheat. During the process Distillers Dried Grain with Solubles (DDGS) is also produced – a high-grade protein feed sold to livestock producers.

New opportunities became available when the Saskatchewan and Manitoba governments announced plans to mandate the use of ethanol-blended gasoline in their provinces. Anticipating this decision, Husky has completed construction of an ethanol plant at Lloydminster, Saskatchewan and is building another plant at its existing Minnedosa site.

The Lloydminster facility is expected to be fully operational by the third quarter of 2006. It will have a production capacity of 130 million litres of ethanol per year and create approximately 26 full-time permanent positions. Ethanol will be made from grain purchased from local producers.



Lloydminster Ethanol Plant

The Red Deer Ethanol Plant:

At the time of my visit Permolex announced an \$8m expansion program for their Red Deer Ethanol Plant.

Permolex are keen to triple the output of ethanol from the existing Alberta based plants and construct a bio refinery in Volney, NY.

Upon conclusion of their expansion program Permolex have set a production target of an additional 100m litres.



The Red Deer plant operates a unique value-added grain fractionation facility located in Red Deer, Alberta, Canada. The facility is the first of its kind in North America, using feed grade wheat in its initial stages of production. The plant's design incorporates leading edge technologies and processes to capitalize on the benefits of integration of three traditionally independent manufacturing processes, namely a flour mill, a gluten plant and an ethanol plant. This unique integration allows the by-products of one process to be utilized as feedstock for the next process. »The Volney plant uses approximately 41 million bushels of corn annually as a

feedstock to produce 114 million gallons of ethanol each year, which will be used as a clean-burning gasoline additive and extender to help states like New York comply with federal clean air mandates.

Canadian Government Funding Arrangements.

In July 2005 in the second round of funding under the Government of Canada's Ethanol Expansion the Government of Canada allocated \$46 million for the construction or expansion of five ethanol plants across Canada.

The following companies' allocated contributions under Round 2 of the EEP were:

- Commercial Alcohols Inc. — \$15 million for a new plant in Windsor, Ontario;
- Husky Oil Marketing Company — \$10.4 million to build a plant in Minnedosa, Manitoba;
- Integrated Grain Processors Co-Operative Inc. — \$11.9 million for a new plant in Brantford, Ontario;
- Permolex Ltd. — \$1.1 million to expand its existing facility in Red Deer, Alberta.
- Power Stream Energy Services Inc. — \$7.3 million to convert a recently closed starch plant in Collingwood, Ontario; and

These contributions were in addition to \$72 million that was previously allocated to six other projects under the first round of the Ethanol Expansion Program.

The projects, supported under both rounds of the Ethanol Expansion Program, expected to be producing a total of about 1.2 billion litres of fuel ethanol per year by the end of 2007. This would bring Canadian production to approximately 1.4 billion litres per year, seven times what it was prior to the launch of the program, and enough to meet the Government of Canada's climate change target for ethanol production two years ahead of schedule. This target is to have 35 percent of all gasoline in Canada contain a blend of 10-percent ethanol by 2010. Additionally, the \$118 million in funding the Government of Canada has allocated under the EEP will result in close to a \$1-billion investment from the companies involved in the projects.

The three projects in Ontario, combined with the projects that were allocated contributions under Round 1 of the EEP, are expected to increase ethanol production in the province to almost 800 million litres per year. This is enough capacity to meet the requirement, announced by the Government of Ontario, that gasoline sold in the province contain an average of five-percent ethanol by 2007.

Expanding the availability of fuel ethanol helps address climate change. Ethanol is a renewable fuel that can be produced from grain or other plant material. Blended with gasoline, it reduces the greenhouse gas (GHG) emissions resulting from transportation. Any gasoline-powered vehicle manufactured since the 1980s can use gasoline with up to 10-percent ethanol, a fuel that is available at more than 1,000 retail stations in Canada.

Boosting ethanol production also opens new avenues of economic growth, particularly for the rural communities. It will lead to opportunities to diversify Canadian farming, to create new markets for agricultural products and to inject new vitality into rural economies.

In addition to these projects that produce ethanol from grains such as corn and wheat, the Government of Canada is also working with industry to develop and commercialize new technology that produces ethanol from agricultural residues (including straw and corn stalks) and forestry by-products. Ethanol produced with this technology is expected to result in even greater GHG reductions.

The \$118-million Ethanol Expansion Program is one part of the Government of Canada's renewable fuels strategy that also includes support for research and development, exemptions from federal fuel excise taxes and consumer awareness activities.

The Government of Canada's approach to climate change is focused on making the right choices for Canada. This will ensure that the actions taken contribute to long-term goals of building a sustainable economy for the 21st century, a healthier environment and strong communities, while affirming Canada's place in the world.

The original funding for this program was provided in Budget 2003 and is part of the Government of Canada's overall commitment to climate change action.

At the time of my visit Sustainable Development Technology Canada announced a \$48 Million in Clean Technologies Funding Approval.

Media sources reported that with this new funding round, SDTC's cumulative Support for Ethanol and other Biofuel technologies to around \$60 Million.

Sustainable Development Technology Canada (SDTC) has approved \$48 million in new funding for the development and demonstration of clean technologies that benefit the environment and economy.

The money will be allocated to 22 projects, and includes \$7.3 million for four biofuel technology projects ranging from the production of ethanol from cellulose to biodiesel production from mustard seed. The new funding, approved in principle by SDTC's Board of Directors, brings SDTC's total commitment to biofuel technology initiatives to \$59 million. Funding for each project is subject to final contract execution.

Since April 2002, SDTC has completed eight funding rounds, committed \$217 million to 97 clean technology projects, and leveraged \$559 million from project consortia members, for a total portfolio value of \$776 million.

SDTC will launch its next call for Statements of Interest (SOIs) on August 23, 2006. The upcoming call for SOIs will include a request for projects with technologies that address climate change, clean air, clean water and clean soil issues.

Sustainable Development Technology Canada is a foundation created by the Government of Canada that operates a \$550 million fund to support the development and demonstration of clean technologies — solutions that address issues of climate change, clean air, clean water, and clean soil to deliver environmental, economic and health benefits to Canadians.

An arm's length, not-for-profit corporation, SDTC fills the void in the innovation chain between research and commercialization — helping clean technology developers move through the development and demonstration phases, in preparation for commercialization. SDTC applies a stringent due diligence process when selecting technologies and requires every applicant to involve a consortium of partners in their project.

SDTC encourages collaboration among private, financial, academic, and public sector partners, and with the Canadian government to build a sustainable development infrastructure in Canada.

Of the 22 funded projects two were of great interest.

Project Description 1:

Advanced BioRefinery (ABRI) and its consortium partners will demonstrate a 50 tonne-per-day, transportable fast pyrolysis system that converts logging residue including slash and bark into an energy-dense, economically transportable bio-liquid.

The system is primarily designed for remote logging sites but has applications anywhere sufficient biomass exists. The liquid fuel will be used as a replacement for fossil fuel in industrial boilers and furnaces. The renewable fuel can also be used to generate electricity via a gas turbine. ABRI will field test the equipment, determine operating costs and establish relationships between feedstock qualities and product energy and chemical values.

Project description 2:

Bio Vision Technology Inc. will demonstrate a unique biofuel pilot plant that converts renewable biomass (plant material) into feed stocks that can be processed into fuel ethanol and other value-added, co-generated chemical commodities. Until now, engineering and economic challenges have made it unfeasible to convert woody plant fibres (lignocellulose) into industrially useable sugars on a commercially viable basis. Bio Vision has developed an integrated system with a thermal reactor that uses steam fractionation to hydrolyse lignocellulose. Downstream processes convert the output into marketable products such as fuel ethanol, lignin, furfural and acetic acid. Value-added products such as biodegradable plastics, building materials, specialty chemicals, cosmetics, lubricants, paints, herbicides, and fertilizers can also be produced from the feed-stocks. Bio Vision's small scale technology minimizes feedstock transportation costs and makes valuable commodity production possible in rural regions with smaller waste volumes.

Husky Energy

Headquartered in Calgary, Alberta, Husky Energy Inc. is one of Canada's largest energy and energy-related companies. The Company has almost \$16 billion in assets and employs approximately 4,000 employees.

HIGHLIGHTS - HUSKY'S ETHANOL FACILITIES

Minnedosa Ethanol Plant

- 10 million litres of ethanol per year capacity
- 25 employees
- 27,000 tonnes of grain feedstock purchased annually
- 9,000 tonnes of DDGS produced annually

Lloydminster Ethanol Plant - Under Construction

- 130 million litres of ethanol per year production capacity
- 40 to 60 person-years of engineering during design and construction
- Approximately 140 person-years of construction
- Fully operational by Q3 2006
- 26 full-time permanent positions will be available
- 350,000 tonnes of grain feedstock purchased annually
- 134,000 tonnes of DDGS produced annually

Minnedosa Ethanol Plant - Under Construction

- 130 million litres of ethanol per year production capacity
- 40 person-years of engineering during design and construction
- More than 200 person-years of construction

- Fully operational by mid-2007
- 5 to 10 new positions anticipated
- 350,000 tonnes of grain purchased per year
- 126,000 tonnes of DDGS produced annually.

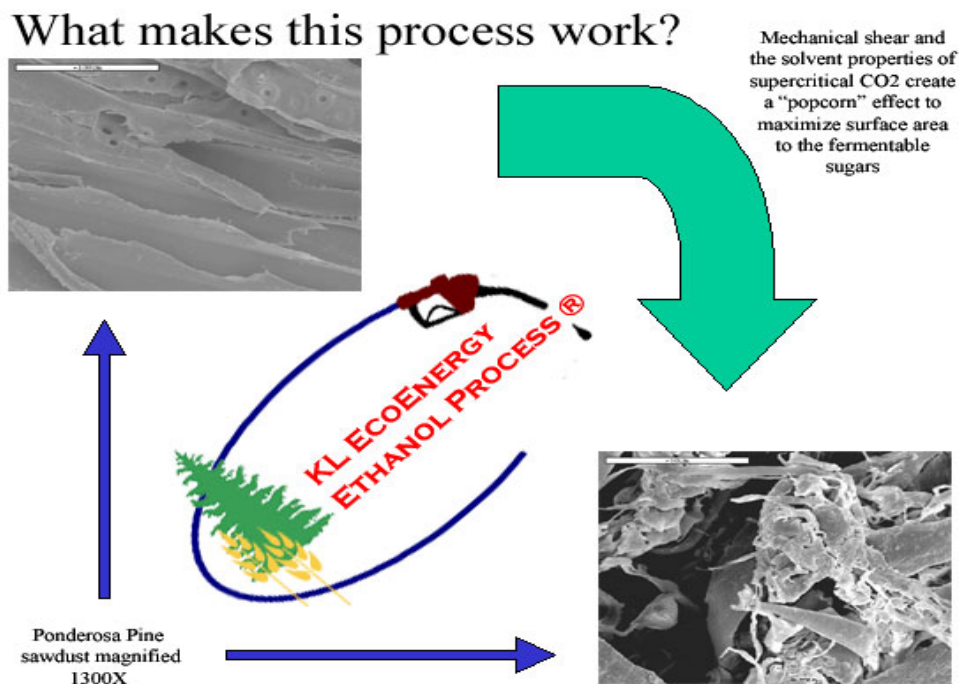
Meeting with KL Canada Eco Energy

I met with officials of KL Canada Eco Energy Inc in Calgary including Chairman and Chief Executive Officer Ernest Nyze.

Discussions included their view of the Canadian biofuels industry about the various parameters affecting the profitability of wet and dry ethanol plants and the potential for commercial production of fuel grade ethanol from forestry operation waste residual streams and harvested logging operation residual.

KL Eco Energy has patented a unique process of pretreating cellulose waste residual centred on the use of supercritical carbon dioxide to increase the exposure to the sugars locked into the wood fibre for the subsequent conversion to ethanol.

This concept has far reaching potential to bring many sectors of forest management together while simultaneously providing an economically renewable fuel.



Projected Canadian Ethanol Demand based on 2004 Provincial Gas Consumption

PROVINCE	metal Gasoline Sales (Million Litres) (Based on 2004 Data)	Ethanol Mandated	Percent Mandated	2007 Mandated Ethanol Demand (Million Litres)	2010 Mandated Ethanol Demand (Million Litres)	Existing and New Plant Construction	Capacity (Million Litres)	Ethanol Expansion Program Grants
British Columbia	4,910					Okanagan Biofuels' - Kelona	113.5	\$10 million
Alberta	5,200	Nil				API Grain processing - Red Deer	26.0	\$1.1 million
Saskatchewan	1,330	2006 2007	2.00% 7.50%	100	99.8	Husky' - Lloydminster NorAmara BioEnergy' - Weyburn Poundmaker Agventures- Lanigan	130.0 25.0 12.0	\$7.8 million \$3.5 million
Manitoba	1,430	2007 (85%) 2010 (85%)	7.00% 10.00	85	121.6	Husky' - Minnedosa	130.0	\$16.8 million
Ontario	15,700	2007 2010	5.00% 10,00%	785	1,570.0	Commercial Alcohols - Tiverton Suncor Energy' - Sarnia Seaway Grain Processors - Cornwall Commercial Alcohols - Windsor Commercial Alcohols - Chatham Integrated Grain Processors - Brantford Power Stream Energy - Collingwood	23.0 208.0 66.0 120.0 150.0 119.0 52.0	\$22 million \$10.5 million \$15 million \$11.9 million \$7.3 million
Quebec	8,400	2010 E35,°j to be	3.50%		294.0	Commercial Alcohols - Varennes	126.0	\$18 million
New Brunswick	1,120							
Prince Edward Island	220							
Nova Scotia	1,260							
Newfoundland & Labrador	620							
Yukon, Northwest Territories & Nunavut	112							
TOTAL	40,302			970	2,085.3		1,300.5	\$123.9 million

Other plants visited

1. Archer Daniels Midland Marshall (MN)
2. Broin Enterprises Inc. Scotland (SD)
3. Glacial Plains Ethanol. Watertown (SD)
4. Great Plains Ethanol. Chancellor (SD)
5. Pro – Corn LLC Preston (MN)



Broin Enterprises Ethanol Plant Scotland South Dakota

Pro Corn LLC Ethanol Plant
Preston Minnesota



Great Plains Ethanol Plant Chancellor South Dakota