

MINUTES OF THE HOUSE COMMITTEE ON ENVIRONMENT.

The meeting was called to order by Chairperson Joann Freeborn at 3:30 p.m. on January 20, 2000 in Room 423-S of the Capitol.

All members were present except: Rep. Tom Sloan - excused
Rep. Melvin Minor - excused

Committee staff present: Raney Gilliland, Kansas Legislative Research Department
Mary Torrence, Revisor of Statute's Office
Mary Ann Graham, Committee Secretary

Conferees appearing before the committee: Steve Howell, MARC-IV Consulting, 16200 Northridge Drive, Kearney, MO 64060
Richard G. Nelson, Ph.D, Energy/Environmental Engineer, Kansas State University, 133 Ward Hall, Manhattan, KS 66506-2508

Others attending: See Attached Sheet

Chairperson Joann Freeborn called the meeting to order at 3:30 p.m. She reviewed next week's committee agenda, Tuesday, January 25, there will be hearings on HB2659 - Concerning public wholesale water supply districts; relating to the powers and duties thereof and HB2658 - Concerning public water supply systems; concerning regulation and related fees; providing exemptions from certain fees and taxes. Also bill requests will be taken. On Thursday, January 27, a review status on Abandoned Oil and Gas Wells and Remediation Sites by Maurice Korphage, Director, Conservation Division, Kansas Corporation Commission is scheduled and an update on the Interstate Compact on Low-level radioactive waste by Mr. James O'Connell, Kansas Commissioner. Agency bill requests will be taken. She announced that she would like to have all bill requests in by Thursday, January 27.

The Chairperson asked if there were any bill requests at this time.

Representative Doug Johnston made a motion to introduce a bill requiring counties over 80,000 in population to include as a part of their solid waste management plan annual recycling goals of at least: 20% by 2002; 25% by 2003; and 30% by 2004. The requirement would sunset in 2004 subject to review and revision by the legislature. Seconded by Representative Henry Helgerson. Motion carried.

Representative Dennis McKinney made a motion to introduce a bill for a well plugging assurance fund, for deposit of well plugging assurance fees; transfer all assurance fees previously collected from the conservation fee fund to the well plugging assurance fund; and retain interest earnings within the fund. Seconded by Representative Laura McClure. Motion carried.

Chairperson Freeborn welcomed Steve Howell, MARC-IV Consulting, to the committee. He along with Dr. Richard Nelson, Energy/Environmental Engineer, Kansas State University, with the use of slides, gave an update on biodiesel fuel. Biodiesel is a fuel comprised of monoalkyl esters of long chain fatty acids derived from vegetable oils or animal fats, designated B100. Jeff Wagaman, Executive Director, Kansas Corporation Commission, sponsored a project to look at the potential of biodiesel in the state of Kansas and was in attendance to offer comments about the project. Mr. Wagaman asked Mr. Howell and Dr. Nelson to overview the results of the work that has been under taken on behalf of the Kansas Corporation Commission. The update objectives were an overview of biodiesel; preliminary findings from the biodiesel feasibility study; and to spark interest in the product. (See attachment 1) Mr. Howell believes Kansas could benefit from the development of biodiesel manufacturing plants with the increasing consumption of diesel fuel, changes in energy policy and a faltering agricultural economy. Questions and discussion followed.

The Chairperson thanked Mr. Howell and Dr. Nelson for their presentation today.

The meeting adjourned at 4:40 p.m. The next meeting is scheduled for January 25, 2000.

HOUSE ENVIRONMENT COMMITTEE GUEST LIST

DATE: January 20, 2000

NAME	REPRESENTING
Rebecca Bryant	intern for Rep. Sharon Schwartz
Larry Blodgett	City of Belkville
Bradley B. Charfield	City of Belleuille
Clarie Deardaley	" "
Cary Hobbs	" "
Mikel Hadachek	" "
Rich McKee	KLA



*Biodiesel Update
Kansas House Environment
Committee*

*Steve Howell, MARC-IV
Richard Nelson, Kansas State University
January, 2000*



Biodiesel Update--Objectives

- ❖ Overview of Biodiesel

- ❖ Preliminary Findings from Biodiesel Feasibility Study

- ❖ Spark Interest

What is Biodiesel?



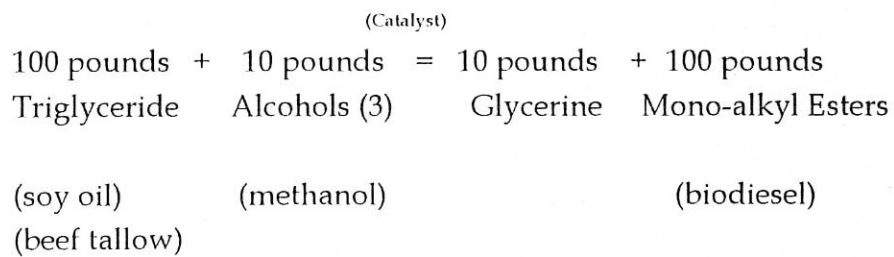
Written Definition

- ❖ *biodiesel*, n. -- a fuel comprised of mono-alkyl esters of long chain fatty acids derived from vegetable oils or animal fats, designated B100.
- ❖ *biodiesel blend*, n. -- a blend of biodiesel fuel with petroleum-based diesel fuel designated BXX, where XX is the volume percent of biodiesel.

So....What is Biodiesel?



The Biodiesel Reaction



Biodiesel Raw Materials

Oil or Fat

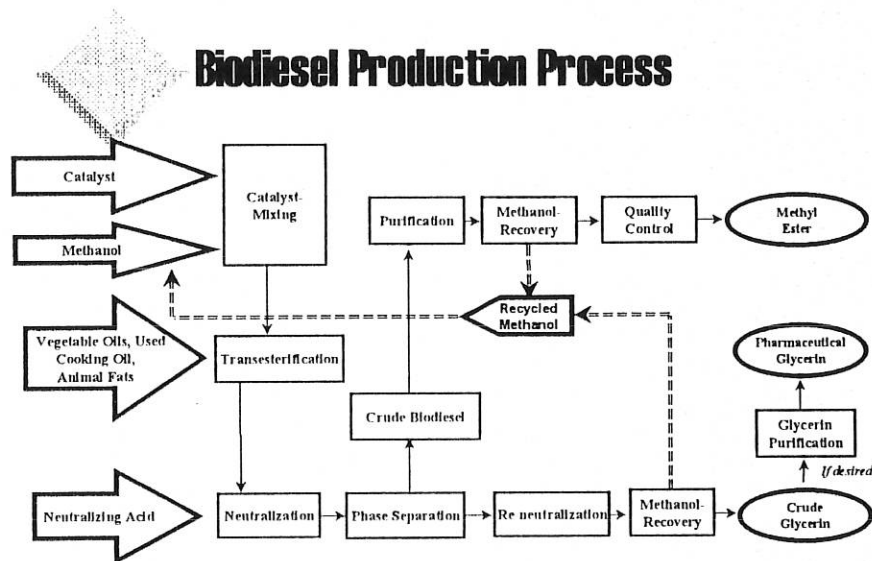
- Soybean
- Corn
- Canola
- Cottonseed
- Sunflower
- Beef tallow
- Pork lard
- Used cooking oils

Alcohol

- Methanol
- Ethanol

Catalyst

- Sodium hydroxide
- Potassium hydroxide



Biodiesel--Physical Properties

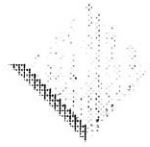
- ❖ No Sulfur
 - ❖ No Aromatics
 - ❖ High Cetane (over 50)
 - ❖ High Lubricity (over 6000 g)
 - ❖ Biodegradable
 - ❖ Non-Toxic
- ❖ All Proven Through Scientific Study



How can Biodiesel be used?

- ❖ As a pure fuel
- ❖ As a blending stock with petrodiesel (B20)
- ❖ In low levels with petrodiesel (1 to 5%)

ANYWHERE #1 or #2 diesel is used



Consumer Readiness

- ❖ Compliments new diesel technologies--
petroleum's preferred partner
- ❖ Existing distribution system can be used
(pipes, tanks, fueling stations)
- ❖ Existing engines/ vehicles can be used



Biodiesel Technical Attributes

- ❖ **Biodiesel Emissions**
 - Reduces Particulates
 - Reduces Carbon Monoxide
 - Reduces Unburned Hydrocarbons
 - Nitrogen Oxides Unchanged or Up Slightly:
 - ◆ Optimized Engine Can Reduce NOx

Health Effects

- ❖ The cancer causing potential of diesel exhaust largely a function of:
 - Amount, size, and composition particulates
 - Mutagenicity of exhaust gases
- ❖ High exhaust mutagenicity can cause:
 - shortened life, still births
 - birth defects, cancer
 - asthma and respiratory problems
 - ◆ Especially in infants or the elderly

Biodiesel and Health Effects

- ❖ Reduces Particulate Emissions
- ❖ Reduces targeted compounds thought to cause cancer: PAH, nPAH
- ❖ Significantly Reduces the Mutagenicity of Exhaust
 - In both the gaseous and particulate phases

- ❖ Biodiesel Can Play an Important Role in Reducing Cancer and Birth Defects

Global Warming



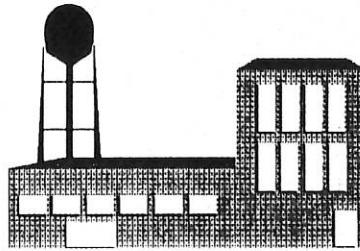
- ❖ Focus: Reduce CO₂
- ❖ How?
 - ❖ Reducing Fossil Fuels: Gasoline, Diesel, Natural Gas, Coal, etc.
 - ❖ Higher Efficiency Engine Platforms
 - ❖ Increased CAFE

Biodiesel and Global Warming

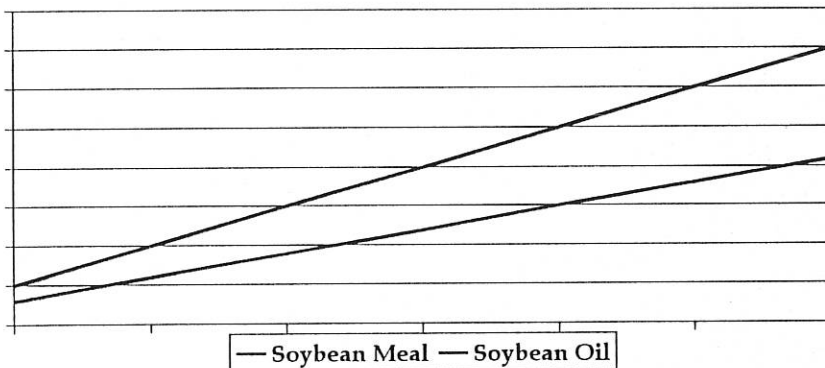
- ❖ Closed Carbon Cycle: CO₂ Used to Grow Feedstock is Put Back Into Air
 - ◆ 80% Life Cycle Decrease In CO₂
- ❖ Energy Balance 3.24 to 1
- ❖ Compression Ignition Platform 30% to 40% More Efficient Than Spark Ignition

Economic Development--Biodiesel

- ❖ Creates Manufacturing Jobs
- ❖ Reduces Energy Imports
- ❖ Improves Balance of Trade
- ❖ Creates Expanded Markets for Agriculture



Soybean Market Dynamics



Issues Facing Tallow

- ❖ Human Preference for Mono-unsaturated Fats and Oils
- ❖ BSE Issues are Impacting Foreign Markets for Tallow
- ❖ Recent European Concerns Regarding Contaminated (PCB) Feeding Fats, Combined With GMO Issues, Reducing Use of Feeding Markets in Europe.

Biodiesel and EPACT

- ❖ EPACT--Energy Policy Act of 1992
 - Federal, State, and Utility Fleets
 - Must Purchase Alternative Fueled Vehicles
- ❖ ECRA: Energy Conservation Reauthorization Act of 1998
 - 450 gallons of biodiesel in existing diesel vehicles equals one new AFV purchase credit
 - Congressional Budget Office
 - ◆ Savings of \$10MM

Biodiesel--1999

❖ Premium Biodiesel Additive

❖ Koch Petroleum

- US Soy Field and US Soy Field 50 Diesel
- 18 terminals in 5 states
- Enhanced lubricity
- Evaluating offering B20 at terminals

❖ Country Energy

- Soy Master
- 5 terminals in 5 states



President Signs Executive Order

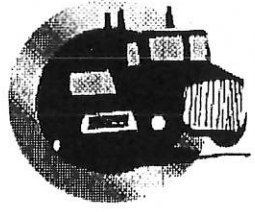
- ❖ Executive Order 13134, 8-12-99
- ❖ Triple the Use of Bioenergy and Bio-based products by 2010
- ❖ USDA Secretary Dan Glickman Announced USDA's Biodiesel Use



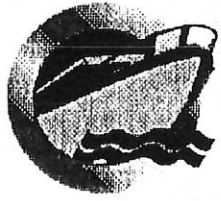
Photos Courtesy of the American Soybean Association



Biodiesel Fuel Markets



EPACT
REGULATED FLEETS
• Federal
• State
• Utilities



MARINE
• Recreational
• Tour Boats
• Environmentally Sensitive Areas



PREMIUM DIESEL
• Lubricity Enhancement
• Carrier Oil for Multifunctional Chemistries

Biodiesel's Future

❖ Low Cost Compliance Option at B20 or Lower Blends:

- Energy Policy
- Clean Air/Health Effects
- Global Warming--CO₂ Reduction
- Economic Development

Biodiesel's Future

❖ Blending Component For Petrodiesel:

- Lubricity
- Farm/Rural Use
- Sulfur/Aromatic Reduction
- Incremental Cetane Improvement
- Emissions Benefits

Biodiesel Feasibility--Liberal, KS

❖ Objectives:

- Determine the economic viability of producing biodiesel near Liberal, KS
- Technology, size, operating questions
- Assess biodiesel demand near Liberal
- Summary of economic impacts to the region and to the state
- Use the study to provide information to private investors, others for consideration

US Energy Consumption and Imports

- ❖ Since 1990, US energy consumption has increased by 14% (28% in the last 25 years) and is forecast to increase another 22% by 2020
- ❖ Net petroleum imports are projected to increase to 65% of total energy consumption within 20 years while at the same time domestic crude production is expected to continue to decline
- ❖ Transportation sector accounts for about 70% of US petroleum use

US and Kansas Diesel Fuel Consumption

- ❖ Over the last 9 years diesel fuel use in the US has increased nearly 50% and is forecast to increase another 30% by 2020
- ❖ Kansas' annual consumption is nearly 375 million gallons
- ❖ Average percent increase in diesel fuel consumption in the 5 closest states was nearly 25% in the last three years

US and Kansas Cattle Slaughter

- ❖ Kansas is the #1 cattle slaughtering state accounting for over 1/5 of the total slaughter in the US
- ❖ Slaughter concentrated at 5 facilities in Southwest Kansas and 1 in Emporia
- ❖ Nearly 1.2 billion pounds of edible and inedible tallow generated annually at these 6 facilities

Kansas Biodiesel Feedstocks

- ❖ Primary feedstocks for biodiesel production in Kansas:
 - soybean
 - sunflower
 - animal fats and waste greases

- ❖ Potential Kansas biodiesel production:

<input type="checkbox"/> soybean	107 million gallons
<input type="checkbox"/> sunflower	5 million gallons
<input type="checkbox"/> animal fats	166 million gallons

Edible and Inedible Tallow

- ❖ Tallow is defined as rendered animal fat derived from the slaughter of cattle

- ❖ Primarily two different grades of tallow, edible and inedible

- ❖ Edible tallow markets :
 - baking and frying fats

- ❖ Inedible tallow markets:
 - animal feed (primary)
 - lubricants and soaps (secondary)

Fat and Oil Price Trends

- ❖ Kansas fat and oil prices generally follow national averages
- ❖ Animal fat prices typically less than vegetable oil prices
- ❖ Current pricing is low for most fats/oils

Biodiesel and Kansas

- ❖ Biodiesel technology is available
 - Installed plant costs: \$3MM to \$15MM
- ❖ Beef tallow abundant in Kansas
 - As well as soybean oil
- ❖ Diesel demand is large
- ❖ Cold flow issues will affect tallow based biodiesel's ability to penetrate some markets



Biodiesel and Kansas

- ❖ Determining potential demand over next several months
 - State regulations, incentives a big part

- ❖ Time appears right for biodiesel
 - EPACT ramping up
 - Low blend/premium biodiesel ramping up
 - Agriculture needs a boost



Kansas and Biodiesel

Key Challenges for Biodiesel

- ❖ Increasing Awareness of the Fuel

- ❖ Monetizing the Benefits of the Fuel