

Oil Seeds to Jet Fuels: The Community Connection

Cornelia Butler Flora

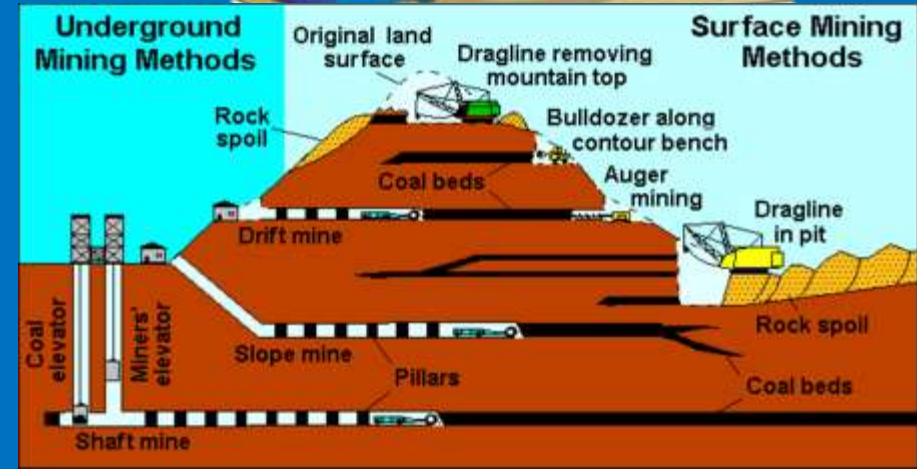
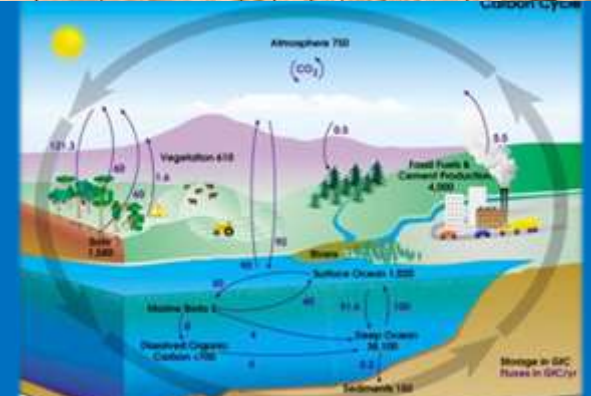
Joe Jakubek

Edward Green



Context

- Decreasing world-wide demand for carbon-based fuels
- Changing, unstable global energy markets
- National energy policies now place more emphasis on renewable energy
- Concerns related to production, transportation and consumption
 - Greenhouse gases & air pollution
 - Jobs
 - Contamination of water and soil

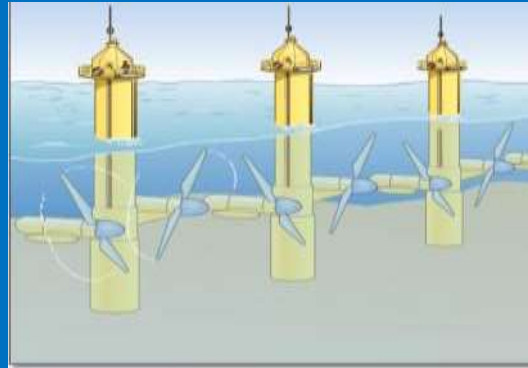


Renewable Energy & Biomass

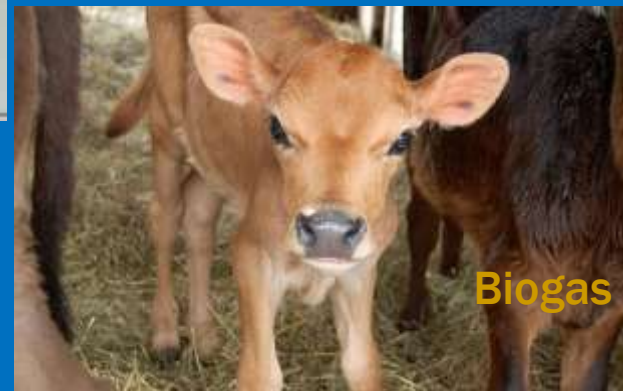
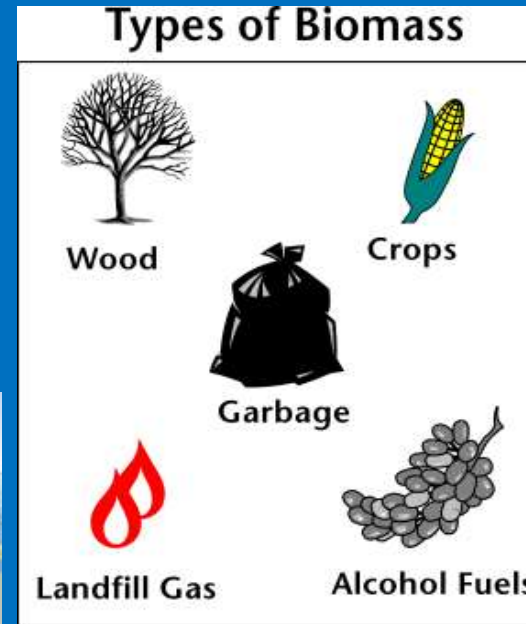
- New ways to generate energy
- Reduces nonrenewable fossil fuel use
- Based on renewable natural capital



New sources of renewable energy



GEOTHERMAL ENERGY



Biogas

BUT – the pressure is for drop-in technology. Anything too innovative, such as hydrogen, would require way too much re-engineering.

- Align interests along the supply chain
 - Effective networks
 - Agricultural community
 - Extension
 - Farmers Organization
 - Business networks
 - Elevators
 - Local processing
 - Farmer adoption
 - Outreach and Extension needs

Biofuel Supply Chain



Feedstock
Development



Feedstock
Production



Feedstock
Logistics



Biofuels
Conversion

Natural Capital

- Climate/weather – increasing volatility
 - wheat systems shifting to corn-soybean systems
- Oil quality
- Erucic acid content
- Harvest/standability
- Timing of harvest
- New pests
- Some interested in cover crops
- Rotation advantages



Cultural Capital

- Continuous planning
- Identity as
 - Independent
 - Innovative
 - Risk manager
- Value complexity
- Moderate tolerance of risk
- Concern for soil quality

Human Capital

- Farmers' preferred methods of gaining information
 - field days; seminars; face-to-face
 - community education events; internet.
- Knowledge of
 - Market alternatives; Production alternatives; Trustworthy sources of information
- Labor availability (seasonality of labor use)
- Risk aversion
- Willingness to change in light of new opportunities provided by
 - New markets; New production systems; New climate conditions; New technology availability

Social Capital

- Existing canola grower organizations
 - Can other crop associations be involved seeing oil seeds as a rotation/cover crop?
 - Link to direct seeding and shared concern with soil quality
- Trust in the players in the supply chain
 - Community linkages important
- Contact with trusted person with authority

Political capital

- Terms of crop insurance
 - Need production record to be covered
 - Coverage while transitioning
 - Yield insurance
 - Price insurance
- Tax credits for inputs and machinery
- Dependency on monopsony buyers

Policy History of Alternative Fuels

- **1978 Energy Tax Act**: Fed gasoline excise tax exemption for blenders of ethanol of 4 cents per gallon for a blend of up to 10% ethanol.
- **1980 Energy Security Act**: Created a loan guarantee program for the construction of ethanol plants.
- **1980 Crude Oil Windfall Profit Tax Act**: Ethanol excise tax exemption was extended until 1992 and an income tax credit of 40 cents per gallon was created.
- **1980 Omnibus Reconciliation Act**: Ethanol import tariff was created.
- **1980 Gasohol Competition Act**: Prevented gasoline marketers from discouraging the use of gasoline blended with ethanol.
- **1982 Surface Transportation Assistance Act**: The excise tax exemption was raised to 5 cents per gallon of gasohol and gas excise tax was raised to 9 cents.
- **1984 Tax Reform Act**: Excise tax exemption increased to 6 cents per gallon of blended gasohol, income tax credit raised to 60 cents per gallon of ethanol.

Policy History of Alternative Fuels

- **1990 Clean Air Act Amendments**: Required gasoline in 31 urban areas to contain higher percentage of oxygen to reduce air pollution, ethanol fulfilled this requirement.
- **1998 Transportation Efficiency Act of the 21st Century**: Lowered excise tax exemption to 5.1 cents per gallon of gasohol, lowered income tax credit to 51 cents per gallon of ethanol and extended both through 2007.
- **2004 American Jobs Creation Act**: Replaced the excise tax exemption with a tax credit and renamed the program the Volumetric Ethanol Excise Tax Credit (VEETC).
- **2005 Energy Policy Act**: Created the **Renewable Fuels Standard (RFS)** mandating the production of 7.5 billion gallons of ethanol to be blended by 2012.

- Local market for co-product
- Crop insurance
- Contracts/futures/hedging
- Risk management/diversity
- When paid
- Price
- Storage fees
- Shipping fees (how far to the purchase point)
- Local capital willingness to invest in pressing plant
- City or county willingness to float bonds to build a plant

Financial Capital

Built Capital

- Field Equipment
- Elevators/storage
- Crushing plants
- Processing plants
- Transportation
- Herbicide/chemicals



Feedstock development does not guarantee feedstock production

- This will require a risky shift
 - Overcoming accustomed ways of cropping, harvesting and marketing
- In an era of distrust of government (although the Armed Forces may have more credibility)
- Willing to share information with private companies to reap advantages of “big data”, but not with public agencies or universities

When community matters

- Transparent negotiation of contracts as mechanisms of coordination
 - Past negative experiences with contracts
 - General distrust of government
- Working together to provide the technology and logistics to support oil seed production.
- Negotiate a county-level record to qualify for crop insurance
- Building labor force capacity for harvest, planting and logistics.
- .

Canola and community capitals

