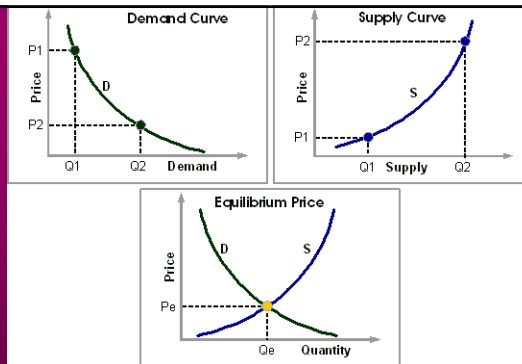


Washington State Policy & Economics of Biodiesel

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If it were
only this
easy.

Whose
economics
farmer
refiner
consumers
state
nation
?

ECONOMIC - \$
ENVIRONMENTAL - cleaner
SOCIAL - urban / rural

slide 2

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context

- 1 billion gallons distillate fuels use in WA
- 6.5 gallon of gasoline per year
- Growing world demand for oil – 70 mbd
- 3 gallons per day per person US – 20 mbd
- Oil Supply peaking – new price level
- Demand will double in 50 years
- Large pollution challenge – air & water
- Diversify rural economies
- All imported to state

slide 3

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Why now?

- \$30m a day leaves our economy - \$11b year
- Energy security
- Improved technologies – Innovation nation
- Public support
- Rural diversification
- Clean air
- Clean water
- Do want to adapt to climate change?
- Prefer to create technologies than buy them?



slide 4

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Biofuels – the value chain

- Grow seed – harvest – store
- Crushing
 - Oil - fuel
 - feed – canola – 250k cows in Yakima valley
 - Fumigants- mustard – rotation with potatoes
- Processing – biodiesel & 10% glycerin
- Refining – lubricants
- distribution – retailing - marketing

slide 5

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Why biodiesel?

- Can grow feed stocks – canola & mustard
- Canola – feed cattle
- Mustard – biofumigate potatoes
- Modular size better fit for northwest
- Midwest better for corn & soybeans
- Midwest way ahead on ethanol
- Cellulosic ethanol still a work in progress

slide 6

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Washington State Policy

- Lead with government usage
- Clear permitting path
- Coordinate agencies
- Improve financing climate – public/private
- Can't control markets for ag or oil
- Can't control farmers or entrepreneurs
- Work with existing infrastructure
- Structure market to expand production
- Quality – quality – quality
- It will be hard but worth it - let's make money

slide 7

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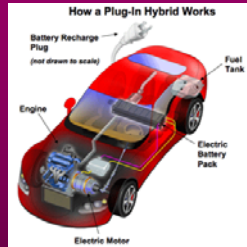
Key questions

- Oilseed crops – will growers grow
 - Rotations - varieties
- Ancillary markets
 - Fertilizer, feed, fumigants, bioproducts
- Optimal locations - seed –use
 - Co-locate – crusher, feed mill, refiner
- Transportation advantage – can we use it
- Horizontally integrated - vertically
- Ownership models - investment

slide 8

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Private - government



- vision
- risks
- control
- Investment
- Innovate
- manage
- Clear framework
- Prevent problems
 - Safety - environmental
- Create markets
- Cajole & assist
- Research
- quality

slide 9

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State Activities underway

- Cluster summary
- Bioproducts
- Business models
- crop research
- Fleet training
- regulatory framework
- Agency coordination
- Grant assistance
- Web based intake tool
- Ancillary products

slide 10

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Federal help

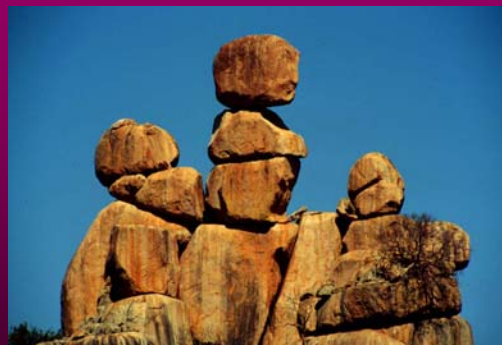
- Federal blenders tax credit
- EPA support for regulatory framework
- USDA guaranteed loans
- USDA crop research
- Navy & GSA approval of pumps & storage
- Usage
- Challenge – decentralize – support diverse activities

slide 11

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Policy puzzle for oil usage

Plan better –live/work
Mass transit - integrate
Infrastructure – multimodal
seamless
Transportation choices –
walk, bike, drive, transit
Improve vehicles
Better fuels
Pricing – send clear signals



slide 12

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Keys to success

- solid business plan
 - Buyers
 - Manufacturing
 - Service
 - Management
 - marketing
 - Distribution channels
 - financing – equity – debt - grants



slide 13

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The end

- We can do it – Be creative - innovate
- Let's do it – try it
- Have fun doing it
- Make money doing it – must invest – take risks
- Work together doing it
- Let's do it
- Just do it

slide 14

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