

Speaker 21: Tim Stearns of Washington State
Department of Community, Trade and
Economic Development

Biofuels & Air Quality

in Washington

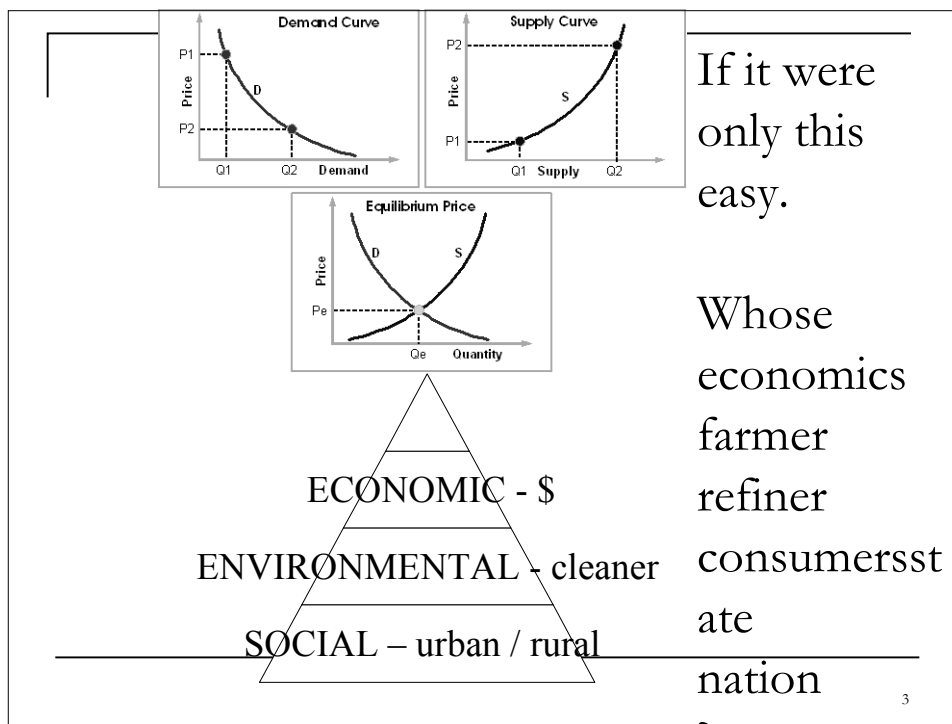
Tim Stearns
Energy Policy Division
WA Department of
Community, Trade & Economic Development
206-256-6121
tims@cted.wa.gov

Policy puzzle for oil usage & air quality

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



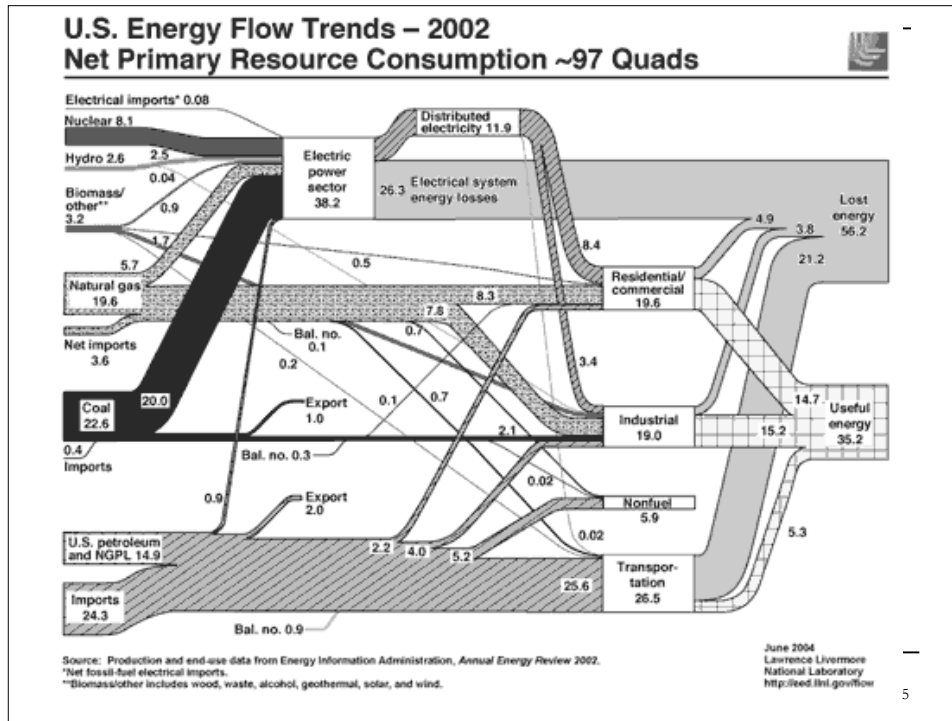
2



context

- 1.2 billion gallons distillate fuels use in WA
- 4b 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

Speaker 21: Tim Stearns of Washington State
 Department of Community, Trade and
 Economic Development



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?



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



7

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 or feds
- Work with existing infrastructure
- Structure market to expand production
- Quality – quality – quality



8

Keys to success

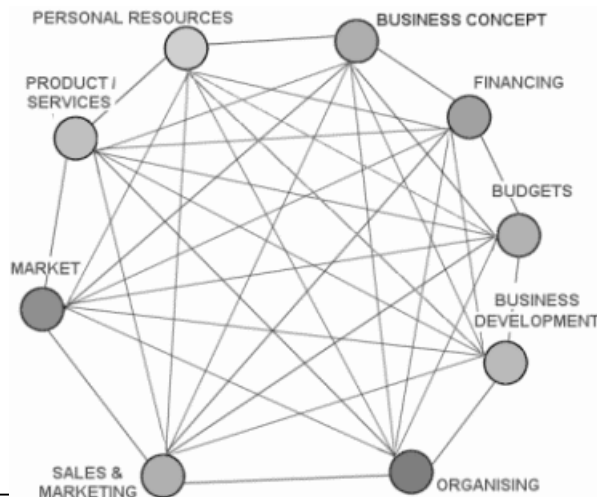
■ solid business plan

- Buyers
- Manufacturing
- Service
- Management
- marketing
- Distribution channels
- financing – equity – debt – grants
- partners



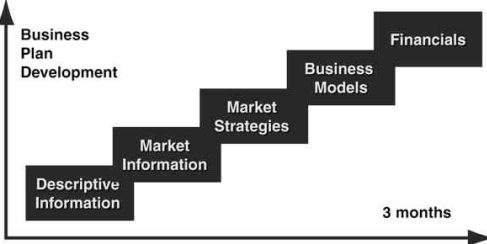
9

Process - product



10

Speaker 21: Tim Stearns of Washington State
 Department of Community, Trade and
 Economic Development



Business Plan Development

Financials

Business Models

Market Strategies

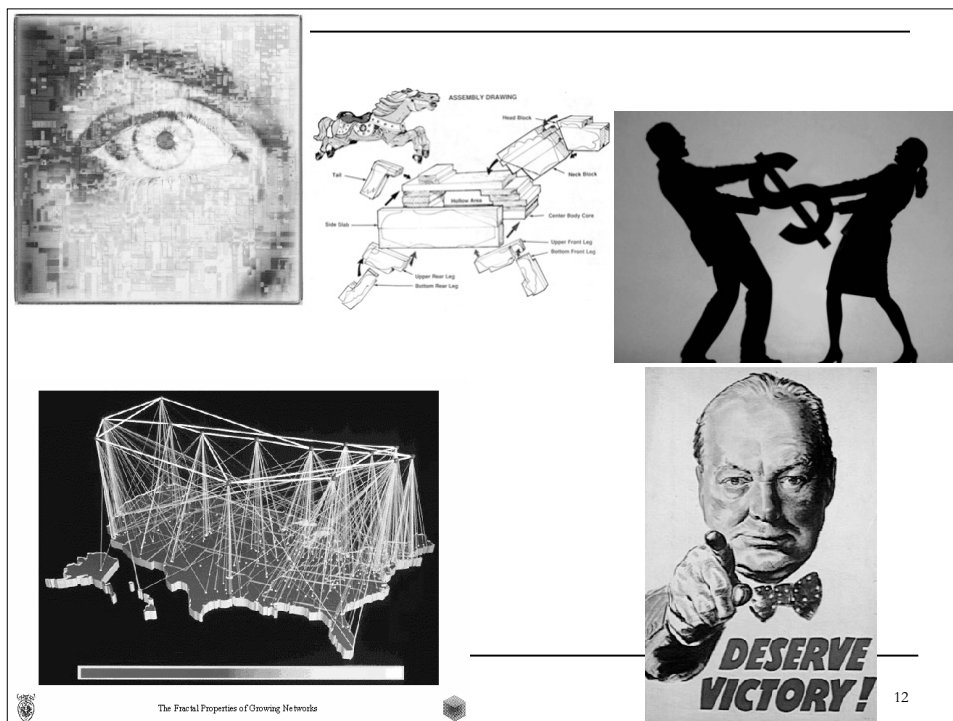
Market Information

Descriptive Information

3 months

Vision – exciting – interesting – doable
 Take stock – what’s needed
 Partners – customers – vendors - suppliers
 Tangible – idea to plan- focus-
 Make progress - use resources smart
 Professional – follow through
 Invested – you are committed

11



ASSEMBLY DRAWING

Head Block

Back Block

Center Body Core

Upper Front Leg

Bottom Front Leg

Upper Rear Leg

Bottom Rear Leg

12

DESERVE VICTORY!

The Fractal Properties of Growing Networks

Air quality biodiesel

- 42% less co2 than diesel
- closed carbon cycle – plant to plant
- 100% Lower sox
- 55% lower Particulates
- 63% Volatile Organic Compounds
- Aromatic toxins
- 13% NoX
- 9,000 dirty school buses

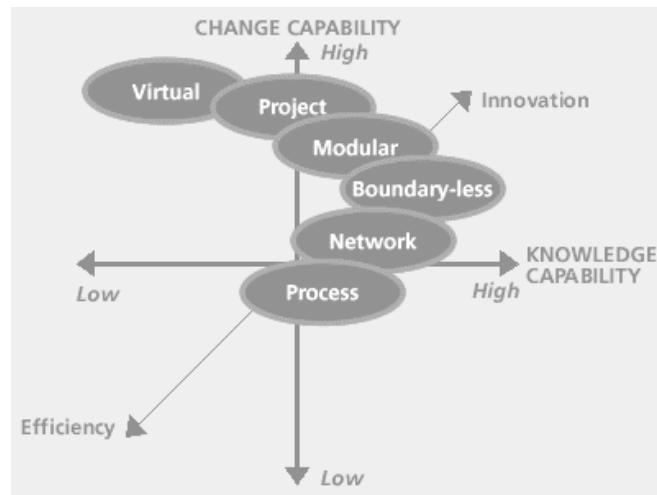
13

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

14

bumpy



15

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

16

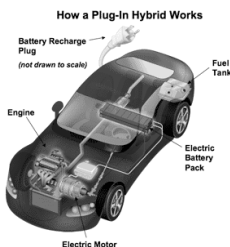
Key questions

- 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

17

Private - government

- vision
- risks
- control
- Investment
- Innovate
- manage



- Clear framework
- Prevent problems
 - Safety - environmental
- Create markets
- Cajole & assist
- Research
- quality

18

VW Polo v Prius

- 60 mpg v 42 mpg
- Lower CO2 emissions
- only 102g/km, 2g less



19

Pithy observations

- Recognize oil addiction 2006 - duh
- Can't wait for feds - might be good
- Avoid harm - provoke change
- Action - alternatives don't just happen
- Diversify rural
- Free market is not free - \$ without morals
- High prices irrelevant without substitutes
- R&D is step 1
- Better crops – better technologies

20

biofuels

- Renewable fuel standard 2% in 2008
 - Market - buyers/framers/referees
- State \$ to attract private
- Quality
- Near term research
- Lead - follow - get out of the way

21

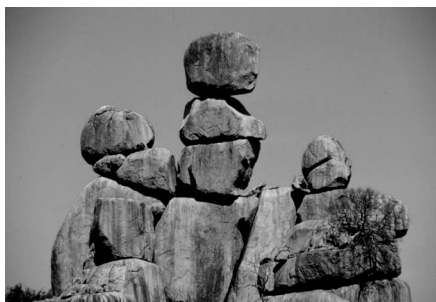
Future direction

- Energy balance of crops
- Low impact carbon standard
- Sustainability
- Incentives - per gallon not efficiency carbon
- New technology coming fast
- Food v. fuel
- Water usage
- infrastructure

22

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



23

Background

- low carbon fuel standards analysis
www.energy.ca.gov/low_carbon_fuel_standard/
- Climate
<http://www.ecy.wa.gov/climate>
- Bioenergy
<http://www.bioenergy.wa.gov>

24

We will never know everything



25

The end

- We can do it – Be creative - innovate
- Have fun doing it
- work together
- Make money doing it –
 - must invest – take risks
- Be smart
- Just do it

