

Biogas Economics and Dairy Air

USEPA West Coast Diesel Collaborative

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Chief Executive Officer

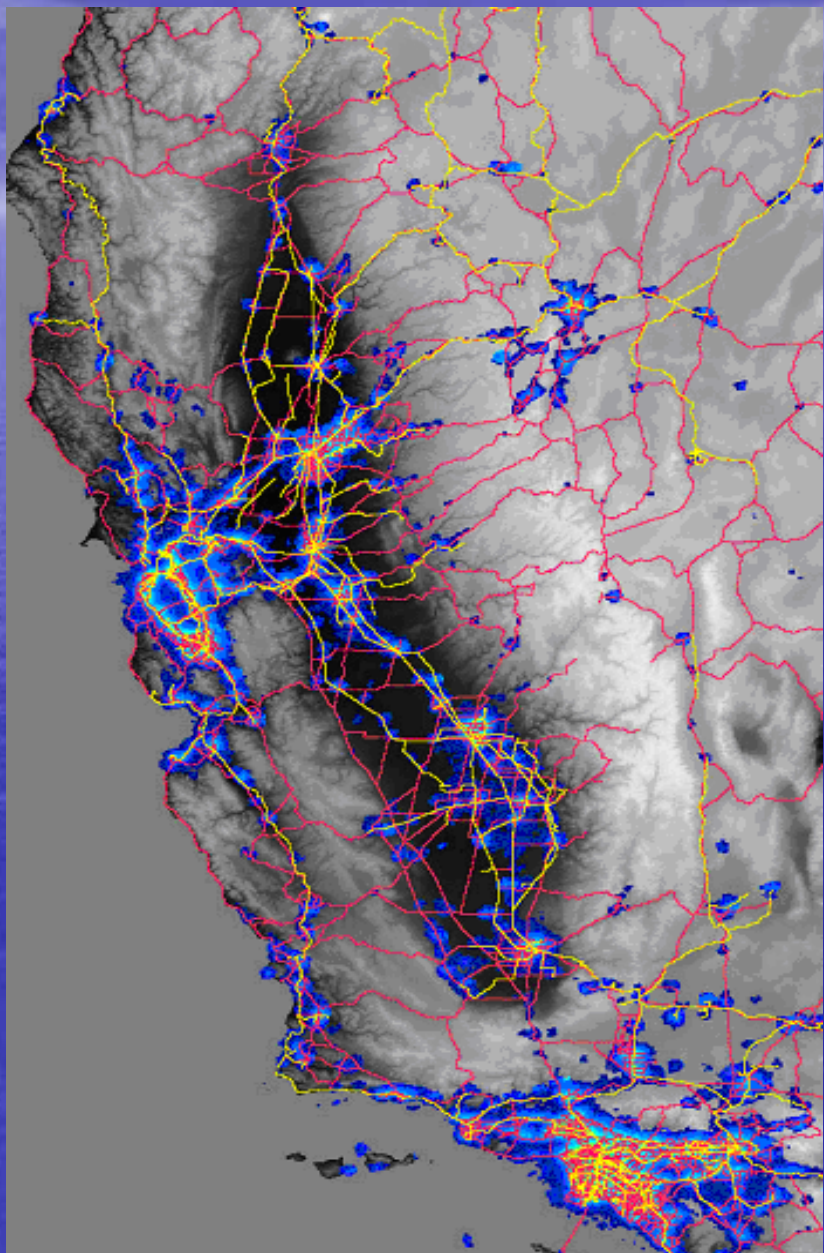
Western United Dairymen

Who we are

- Largest dairy producer trade association in the Western US
- Represent 1,100 of CA's 2,000 dairy families
- 20 member Board
- Environmental compliance
- CDQAP
- Economic analysis
- Litigation support
- Labor relations
- Safety training
- Government relations
- Political advocacy
- Communications and media relations
- Renewable energy and biofuels - WURD

California Dairy Industry

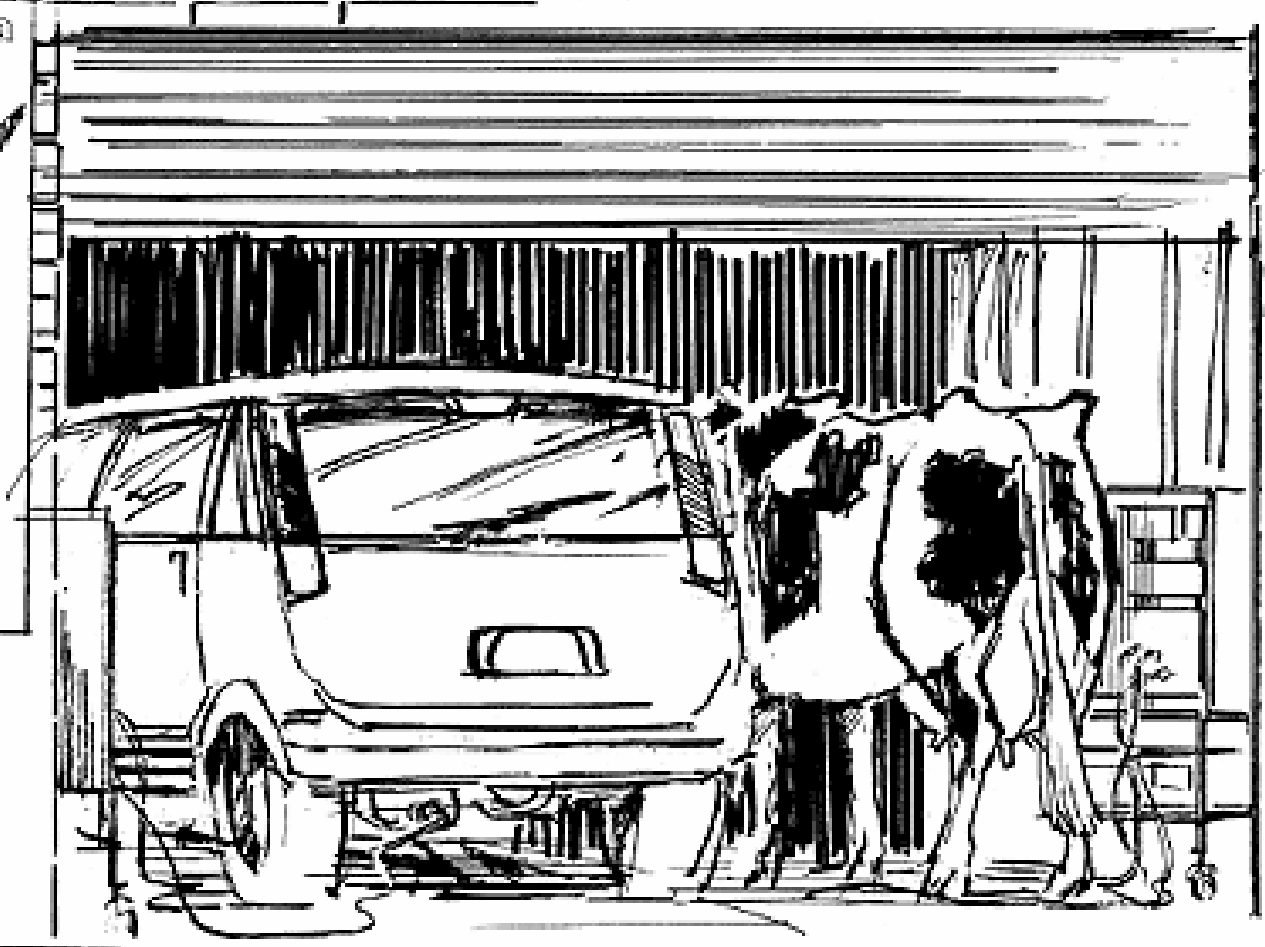
- Massive economic engine
- \$5.2 billion in farmgate receipts
- \$47.4 billion in economic activity
- Responsible for ~ 455,000 jobs
- 1.7 million milk cows
 - Consume feed including food processing byproducts
 - Produce organic residuals



State of California
LICENSED

SMOG CHECK

INSPECTION &
REPAIR STATION



Challenges

- Increasing human population
- Increasing cow population
- Increasing conflict in the rural/urban interface
- Static or dwindling natural resources in the face of increased competition
- Increasing regulatory burden on people and farms
- Too little capital
 - Few or nonexistent CA funds to enhance scenario
 - Dwindling federal resources in the face of massive deficits
- Unmarketable mandates

Meadowbrook Dairy

- San Bernardino County
- Plug Flow system
- 160 kW



Blakes Landing Farms



- Covered Lagoon
- Marin County
- 75 kW



Castelanelli Dairy

- Covered Lagoon
- San Joaquin County
- 160 kW



Castellanelli Example

- Annual electrical cost prior to digester = \$180,000
- Offsets 100% of electrical load
- Exports 25% of generated power to grid
- Flaring two-thirds of biomethane
- Presently using netmetering
- Interconnection and AB 728 & AB 2228

Castellanelli Example

- Shuts down generator once a month for 2 hours ($12 * 2 = 24$ hours / year) for maintenance
- Shuts down generator once a year for overhaul for 48 hours
- $24 + 48 = 72$ hours = 3 days
- 365 days – 3 days = 362 days
- 362 days dairy produces 125% of needs

Castellanelli Example

- 3 days of electricity demanded from grid
- Before digester \$180,000 annual cost
- After digester
 - \$90,000 annual cost ?????

Hilarides Dairy



- Covered Lagoon
- Tulare County
- 500 kW













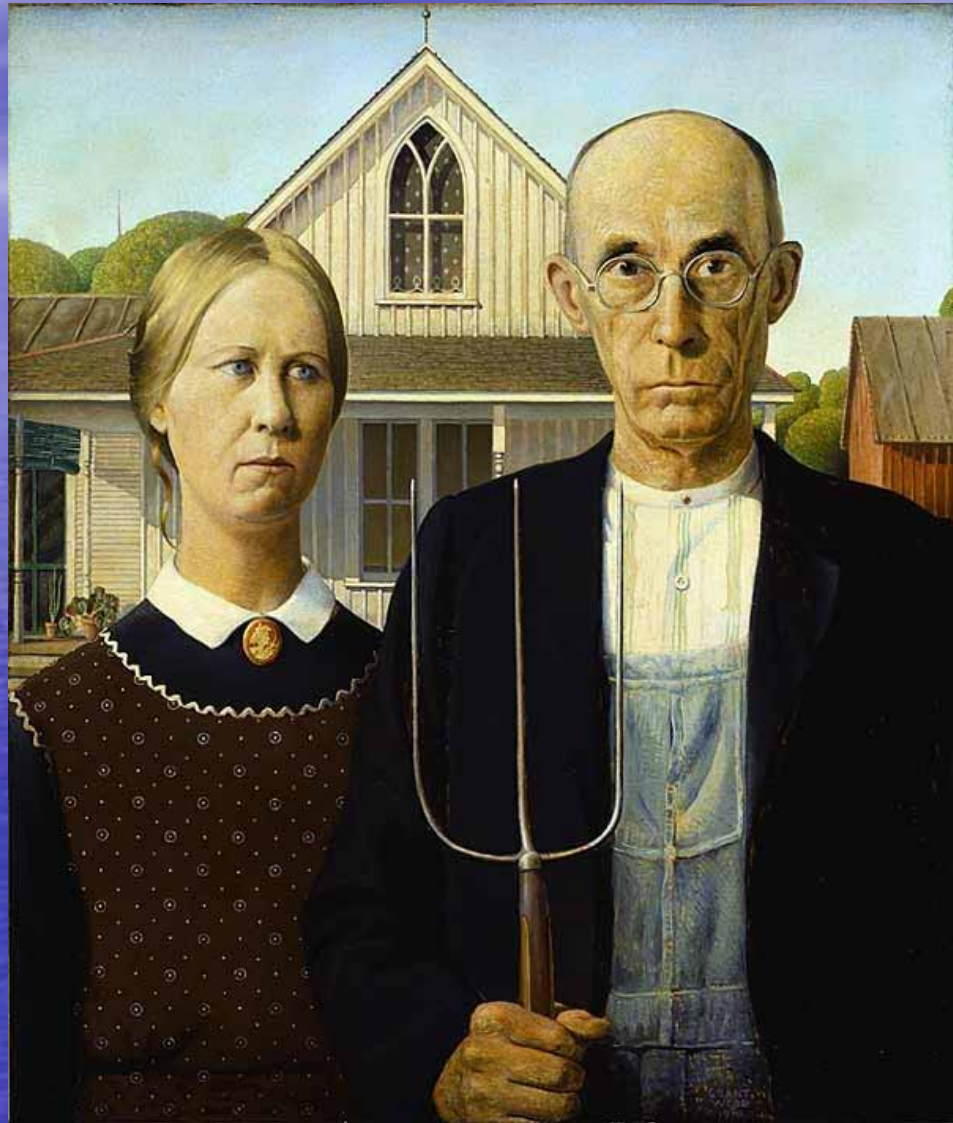




Opportunity

- Need for support to develop biomethane resources (ethanol)
- Need for portfolio
 - Electricity
 - Pipeline quality (10%)
 - Vehicle fuel
- Co-digestion?





How do we connect the dots?









Thank you

www.westernuniteddairymen.com