



Current Biofuels Production in California

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Team Lead
Advanced Generation RD&D Program

Presentation to IEPR Biofuels Workshop

Hearing Room A
California Energy Commission
January 13, 2009

Policy Initiatives Affecting Biofuels



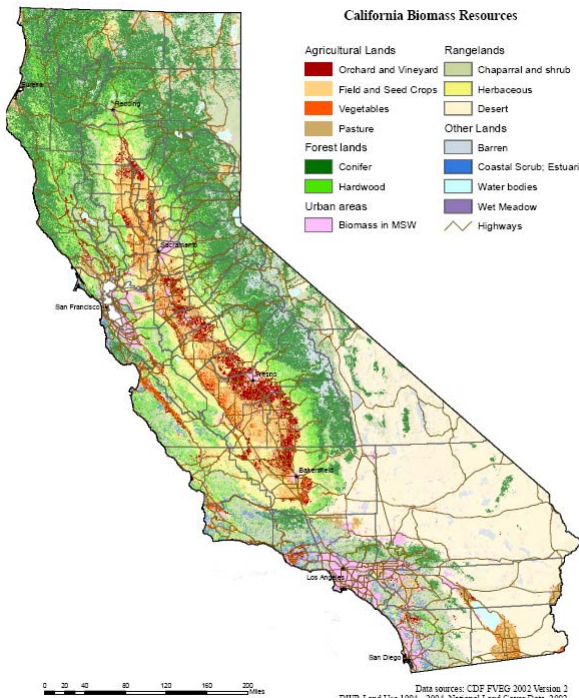
- Governor's Executive Order S-06-06 –biomass & biofuels, (25 April 2006)
- Bioenergy Action Plan (July 13, 2006)
- AB 32 – Global Warming Solutions Act, (27 September 2006)
- Governor's GHG Reduction Targets (Executive Order S-3-05) (1 June 2005)
- Integrated Energy Policy Reports (IEPR) (2003, 2004 update, 2005, 2007, 2008 update)
- Energy Action Plan (EAP) I and II (published 2003 and 2005 respectively)
- Governor's 2003 / 2004 IEPR response and Ten Point Plan
- US 2005 Energy Policy Act
- Western Governor's Association (Charter, 2005 Annual Report, 2003 Policy Roadmap)

Policy Initiatives (Cont'n.)

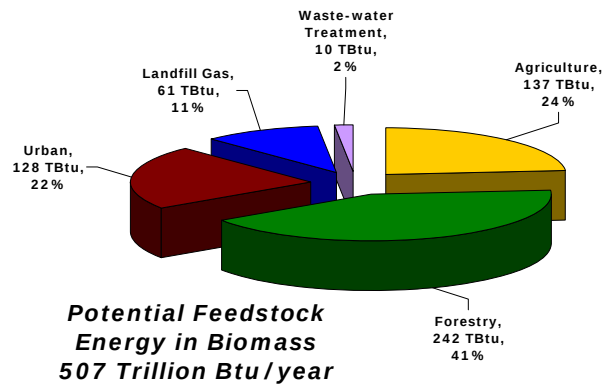
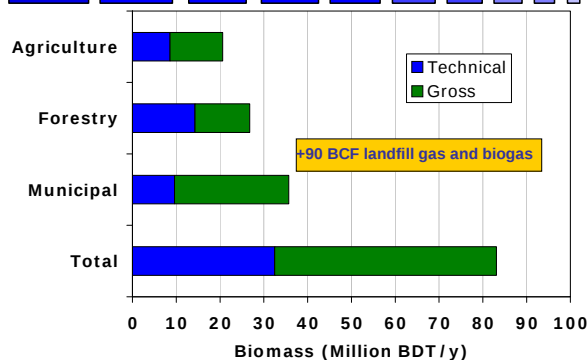


- **AB 1493: Vehicular emissions (22 July 2002)**
- **Governor's Executive Order (EO) 2-7-04: Hydrogen highway (20 April 2004)**
- **AB 1007: Alternative fuels (29 September 2005)**
- **SB 1368: GHG emissions from electricity generation (29 September 2006)**
- **EO S-01-07: Low carbon fuel standard (18 January 2007)**
- **Federal: EPACT 2005, Healthy Forest Restoration Act, Farm Bill Title IX, Advanced Energy Initiative, Biofuels Initiative, HR 6, HR 3221, 30x'30, 20 in 10...**
- **USDOE Bioenergy Research Centers, EBI (BP), Chevron, Conoco-Phillips, USDA, USEPA, CEC, CIWMB, ARB...**

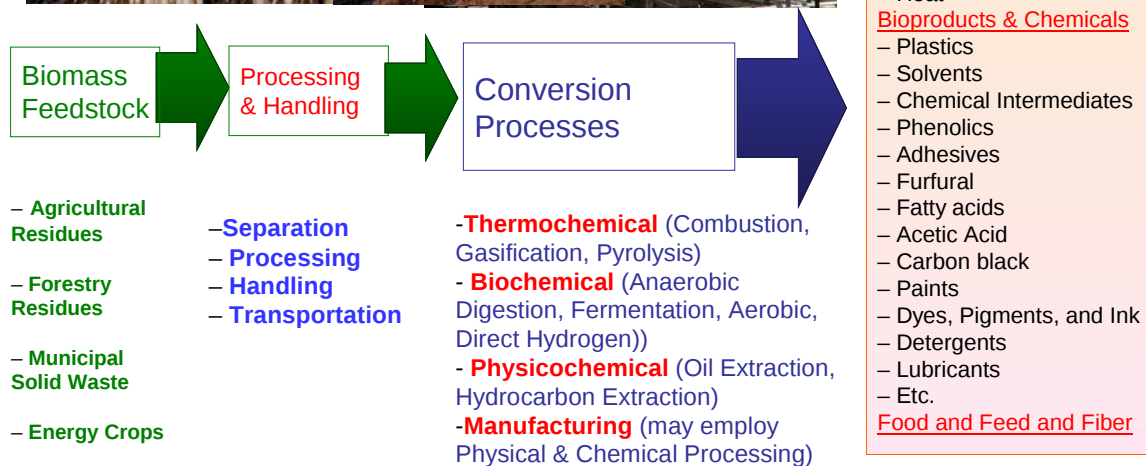
California Biomass Resources



Source: California Biomass Collaborative, 2007



Bio-Industry: Conversion Pathways



Biofuel Consumption in California



California consumes:

- ❑ **950 million gallons per year of ethanol**
- ❑ **Over 43 million gallons per year of biodiesel**



ethanol

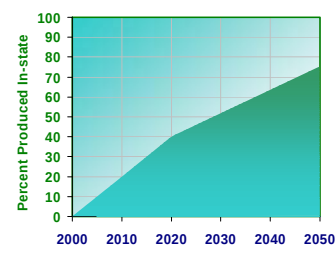
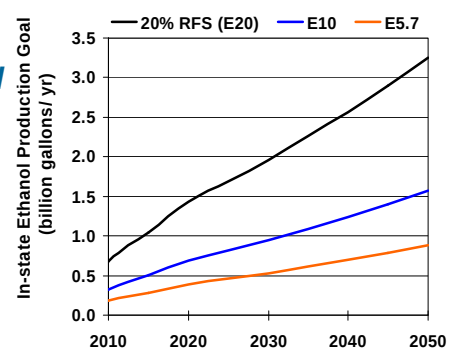


In-state biofuel production goals for blend rate scenarios

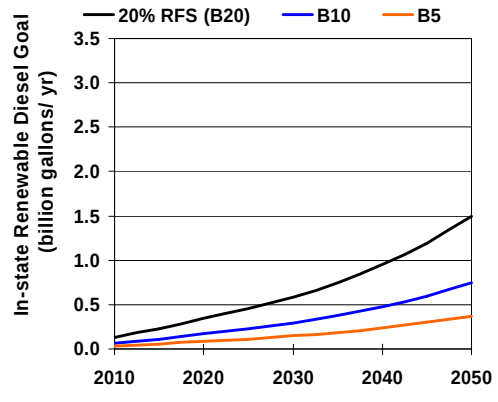


- Assuming projected transportation fuel growth rates and
- Executive Order S-06-06 goals for in-state biofuel production
- 20% by 2010 (0.3 BGY gge) 1.4 BGY demand
- 40% by 2020 (0.8 BGY gge) 2.1 BGY demand
- 75% by 2050 (2.9 BGY gge) 3.9 BGY demand

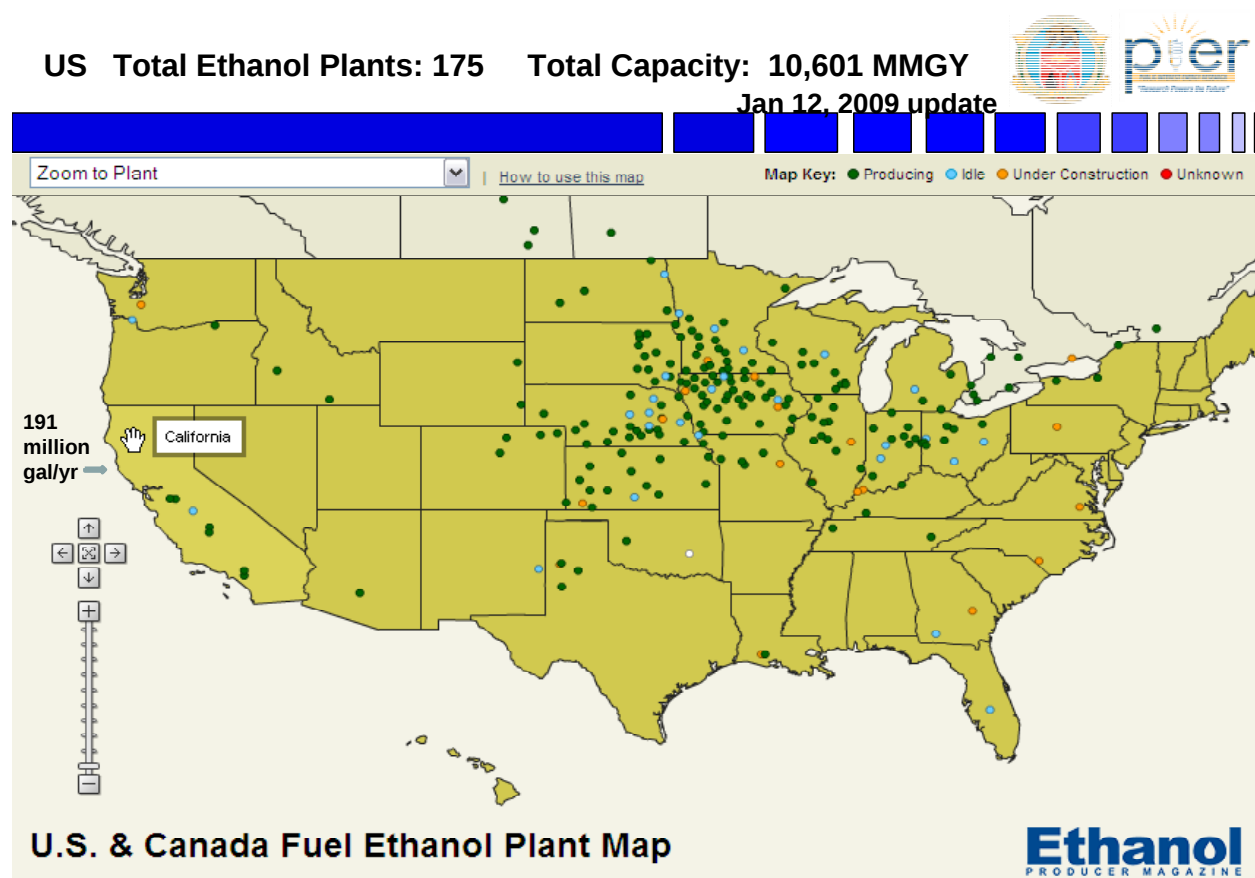
Ethanol



Renewable Diesel



Source: Williams, 2007



<http://www.ethanolproducer.com/plant-list.jsp>



Ethanol Plants in California



<http://www.ethanolproducer.com/plant-list.jsp>

Date updated: 12-Jan-09

Active

<u>Plant Name</u>	<u>City</u>	<u>State</u>	<u>Feedstock</u>	<u>MMGY</u>	<u>Start Date</u>
AltraBiofuels Phoenix Bio Industrie	Goshen	CA	corn	25	Sep-05
Calgren Renewable Fuels LLC	Pixley	CA	corn	52	N/A
Cilion Inc.	Keyes	CA	corn	55	Nov-08
Golden Cheese Co. of California	Corona	CA	Cheese Whey	5	Jan-85
Pacific Ethanol Stockton LLC	Stockton	CA	corn	50	Sep-08
Parallel Products	Rancho Cucamonga	CA	Beverage Waste	4	N/A
Total Plants: 7			Total	191	

Idle

Pacific Ethanol Inc	Madera	CA	corn	40	Oct-06
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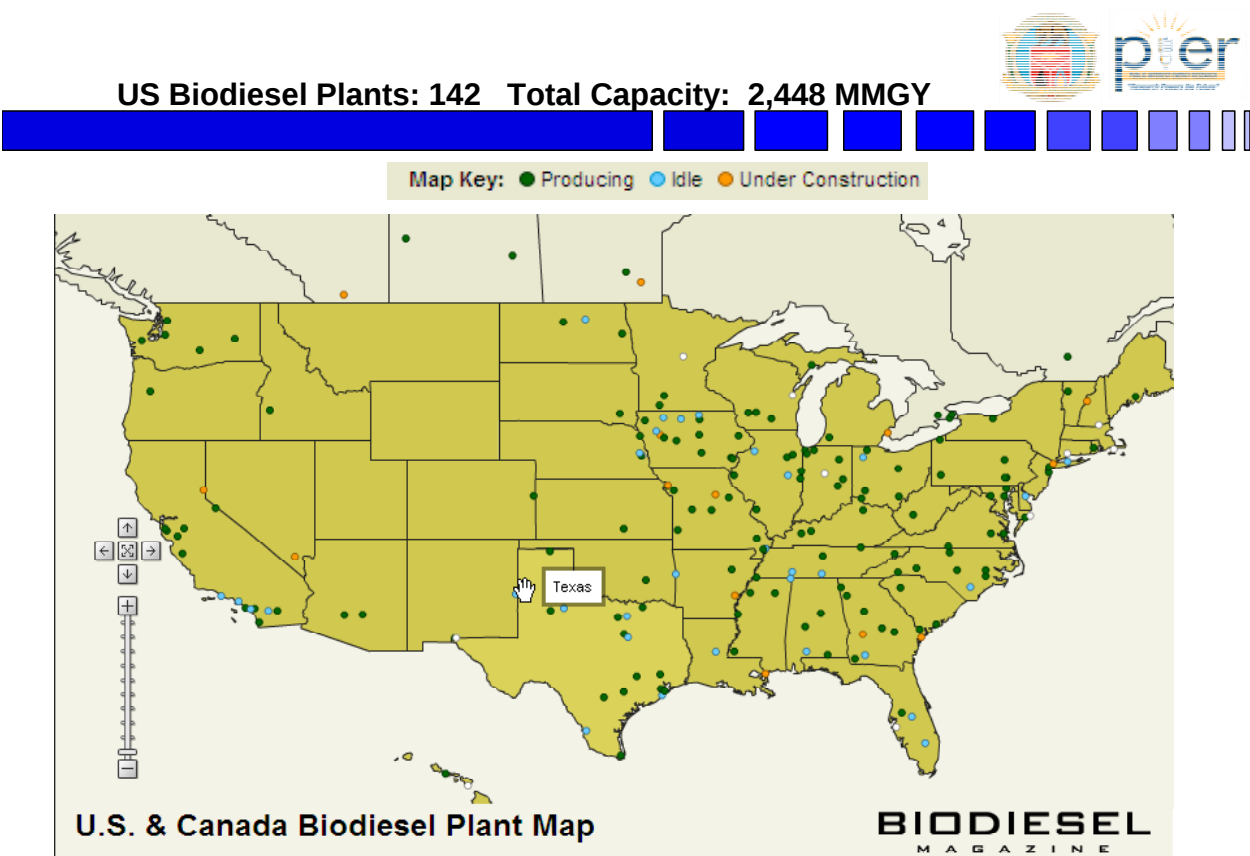


Major DOE Biofuels Project Locations

Geographic, Feedstock, and Technology Diversity



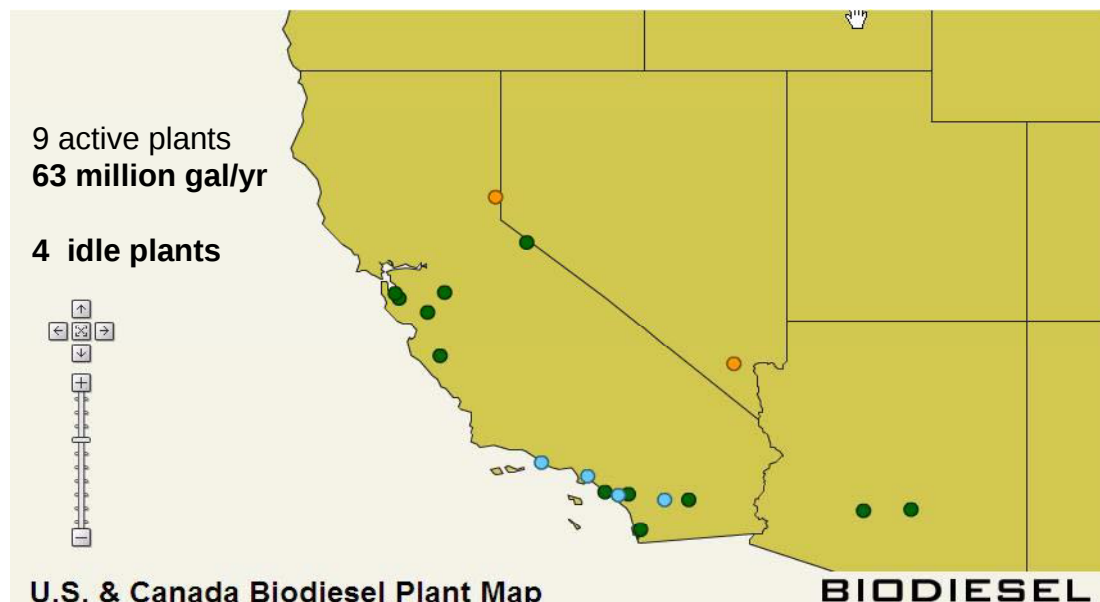
Modified 10/1/2008



California Biodiesel Plants 2009



Map Key: ● Producing ● Idle ● Under Construction



<http://www.biodieselmagazine.com/plantmap/>

Biodiesel Plants in California = 63 million gallons (2009 update)

<http://www.biodieselmagazine.com/plant-list.jsp>



△



Active

Capacity

<u>Plant Name</u>	<u>City</u>	<u>State</u>	<u>Feedstock</u>	<u>MMGY</u>	<u>Start Date</u>
1. Bay Biodiesel LLC	San Jose	CA	virgin oils/yellow grease	5	Oct-06
2. Blue Sky Bio-Fuels Inc.	Oakland	CA	multi-feedstock	20	Feb-07
3. Community Fuels	Stockton	CA	multi-feedstock	10	Dec-08
4. Energy Alternative Solutions Inc.	Gonzales	CA	yellow grease	1	Feb-07
5. Extreme Biodiesel	Corona	CA	multi-feedstock	2	Jan-09
6. Imperial Western Products	Coachella	CA	yellow grease	12	Dec-00
7. LC Biofuels LLC	Richmond	CA	canola oil	1	N/A
8. New Leaf Biofuels LLC	San Diego	CA	multi-feedstock	2	Dec-08
9. REP-LA 1 LLC	Santa Fe Springs	CA	multi-feedstock	10	Jul-08
Total # of active plants = 9				63	

△

Under-Construction

<u>Plant Name</u>	<u>City</u>	<u>State</u>	<u>Feedstock</u>	<u>Capacity *</u>	<u>Start Date</u>
Simple Fuel Biodiesel	Vinton	CA	Yellow Grease	2	Nov, 2008

Idle

<u>Plant Name</u>	<u>City</u>	<u>State</u>	<u>Feedstock</u>	<u>Capacity *</u>	<u>Start Date</u>
1. Biodiesel Industries Ventura LLC	Ventura	CA	Multi-Feedstock	3	N/A
2. Noil Energy Group Inc.	Commerce	CA	Multi-Feedstock	5	Jan, 2008
3. Southern California Biofuel	Anaheim	CA	Waste Vegetable Oil	1	N/A
4. SoCal Biodiesel Fuels LLC	San Jacinto	CA	Multi-Feedstock	2.4	N/A
Idle Plants = 4				11.4	



Thank You

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Cellulosic Ethanol Potential and Status

Cellulosic ethanol anticipated cost competitiveness and sustainability attributes are key to biofuels growth potential

