



Status of Biofuel Production Facilities in California September 2009

Energy Commission Staff Update
2010-11 Investment Plan

Jim McKinney

Emerging Fuels and Technologies Office
California Energy Commission

AB 118 INVESTMENT PLAN BIOFUELS WORKSHOP

**Sacramento, California
September 14 and 15, 2009**



Existing California Ethanol Plant Status Report: Sept. 2009

Plant/Company Name	Location	Capacity MMGPY	1 st production year	Status	Feedstock
Parallel Products	Rancho Cucamonga	5	1984	Only plant currently operating	food and beverage industry wastes
Altra		31.5	2005	Production ceased 11/07 Idle	Midwest Corn
Calgren Renewable Fuels	Pixley	52.5	2008	Prod. ceased 1/09, plant modifications underway	Midwest corn
Cilion	Keyes	55	2008	Production ceased 3/09 Idle	Midwest Corn
Pacific Ethanol	Stockton	60	2008	Production ceased 3/09 Idle	Midwest and California corn
Pacific Ethanol	Madera	40	2006	Production ceased 1/09 Idle	Midwest and California corn
Golden Cheese Company	Corona	3.5	1985	Production ceased 1/08 Closed permanently	cheese wastes
Installed Capacity		247.5			
Capacity operating		5		<i>98 % of California's Ethanol Production Capacity Is Idle</i>	
Capacity Idle		242.7			



California Ethanol Production

- Dry mill ethanol plants in California are “Destination Model Plants” meaning that the ethanol is made at the destination market from imported feedstocks.
- All plants produce distillers wet grains as animal feed to destinations daily within 50 miles of the plant (when operating)
- Economics – at a disadvantage to Midwest plants that are larger. Cost benefits from not drying grains and reduced transportation costs.
- All can be candidates for “front-end” retrofit to process waste biomass, cellulose and purpose grown California crops.
- Some plants are planning or undertaking value added processing such as extraction of corn oil for biodiesel
- Improvements are necessary to remain competitive without of ever improving plants in the Midwest and other states



California Ethanol Demand Relative To In-State Production Capacity (Approximate)

- Existing In-State Production Capacity – 247.5 MM gal/year
- If all existing capacity was operational, 25 % of 2008 ethanol demand would be achieved
- With the shift to 10 % ethanol blending in California gasoline on January 1, 2010, and ethanol demand well over one billion gallons per year, existing plants might meet the 20 % production and use Bioenergy Action Plan goal, but only if all plants are fully operational
- With additional growth in the E-85 market, even that goal will be hard to achieve in the near term.
- Bottom Line – New in-state production capacity will be needed to assure adequate ethanol supplies as California's ethanol demand increases

Annual Demand	MM Gal/Yr
2004	900
2005	950
2006	945
2007	930
2008	960



California Biodiesel Plant Status

(February 2009 EFTO Staff Survey)

Existing Plants - Production and Capacity Summary	Million gallons per year (2009 / 2010 are projections)				
	2006	2007	2008	2009	2010
Average Capacity	1.67	2.00	4.96	9.46	11.78
Average Production	0.79	0.99	3.57	6.16	10.95
Production % of Capacity	48%	50%	72%	65%	93%



California Biodiesel Plant Notes

February 2009

- 12 operating plants with annual capacities ranging from 4 to 30 million gallons per year
- About 105 million gallons of capacity in 2009 (projected)
- Largest is located in Bakersfield, and smallest in Oakland
- Five plants intend to add capacity in 2009/2010 with one facility doubling its capacity.
- Two new plants in Los Angeles and Chilcoot to come on line in 2009 – 10 million gal/yr combined capacity
- Focus of industry effort is improved capacity utilization which stood at about 50 percent in 2006/2007 and is projected to be over 90 percent in 2010.



California Nation-State Statistics

- Population: 36.8 million
- GDP: \$1.8 trillion - 8th largest economy
- GHG Emissions: 440 MMT (2004)
 - 7.2% of U.S. Emissions (Pew Center)
 - 10th largest emitter on global scale
 - Transportation accounts for 38 % of all GHG emissions
- Vehicles: 26.3 million cars + 0.92 million trucks
- Annual Fuel Consumption: 20 billion gallons
 - 16 billion gallons gasoline (~1 billion gallons ethanol E6)
 - 4 billion gallons diesel
 - **3rd largest consumer of vehicle fuels after China and US**



State and Federal Policy Drivers to Reduce GHGs Will Increase Demand for Biofuels

- **California's Climate Change Reduction Goals – AB 32**
 - 1990 Levels by 2020 (~30% reduction)
 - 80 percent reduction by 2050
- **California's Low Carbon Fuel Standard**
 - 10 % reduction in carbon intensity of transportation fuels by 2020
- **BioEnergy Action Plan (Executive Order S-06-06)**
 - *“Maximize the contributions of bioenergy toward achieving the state’s petroleum reduction, climate change, renewable energy, and environmental goals.”*
 - Policy goal to increase in-state production of biofuels
2010 – 20% \implies 2020 – 40% \implies 2050 – 70%



- **Federal Renewable Fuels Standards I and II**
 - 2007 Energy Independence and Security Act



AB 118 Investment Plan Funding Allocations – First Two Years

Fuel / Technology	2-Year Funding Allocation (million)
Electric Drive	\$46
Hydrogen	\$40
Ethanol (waste stream feedstocks)	\$12
Renewable Diesel / Biodiesel (waste stream)	\$6
Natural Gas (Includes \$10 M biomethane)	\$43
Propane	\$2
Non-GHG Support	\$27
Includes \$4 million for sustainability research	
Total	\$176
Sub-total Biofuels (ethanol, biodiesel, biomethane)	\$28