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Renewable Fuel Terminal Infrastructure

California Energy Commission Workshop, April 2009

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Overview

1. Renewable fuels have a permanent and growing share of the California fuels market
2. Existing terminal infrastructure is insufficient to handle increasing renewable fuel volumes
3. Primafuel's Sacramento Low Carbon Fuels Terminal
4. California Energy Commission's Role

Renewable Transportation Fuels: Permanent and growing

"Biofuels will satisfy all incremental increases in U.S. liquid fuel demand through 2030"

- EIA 2009 Annual Energy Outlook

"We believe biofuels could grow from just 1 percent of the world's transport-fuel mix today to as much as 7-10 percent over the next few decades"

-Shell CEO Jeroen van der Veer, April 2009

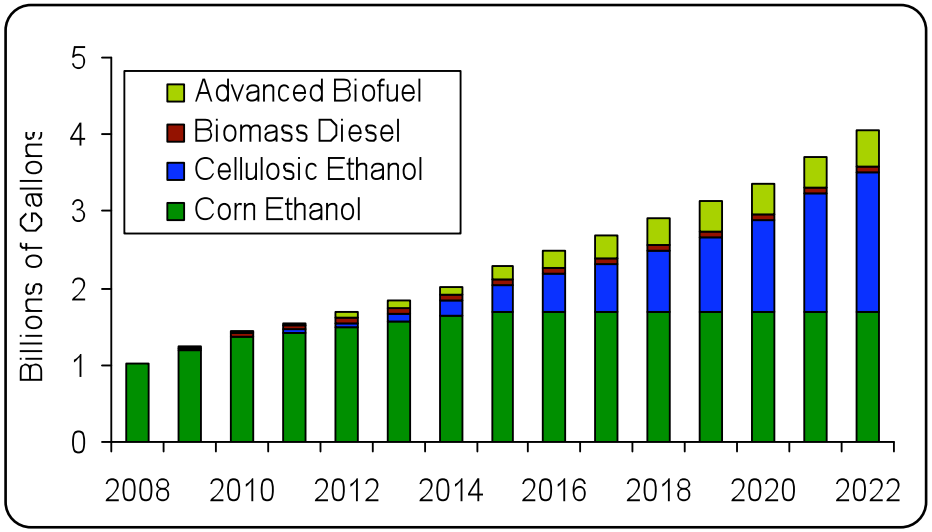
"The purchase represents a recognition on Valero's part that ethanol is going to be part of the fuel mix going forward"

- Valero Spokesman Bill Day, March 2009

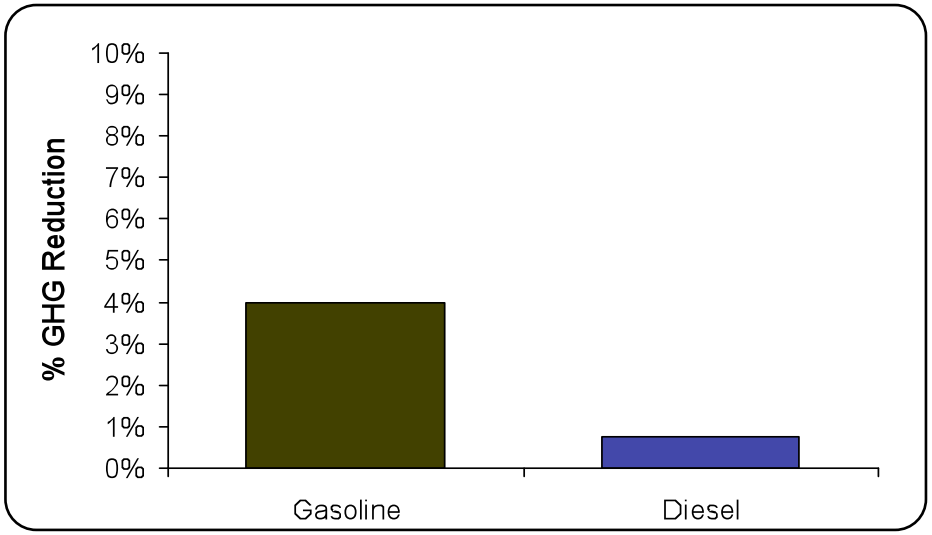
Federal Renewable Fuel Standard (RFS-2)

- RFS-2 sets the floor for biofuel consumption
- Requires use of increasing volumes of biofuels culminating in 4B+ gallons in California by 2022
- RFS-2 mandates only achieve ~33% of the GHG reductions required by the LCFS

RFS-2 California Biofuel Volumes



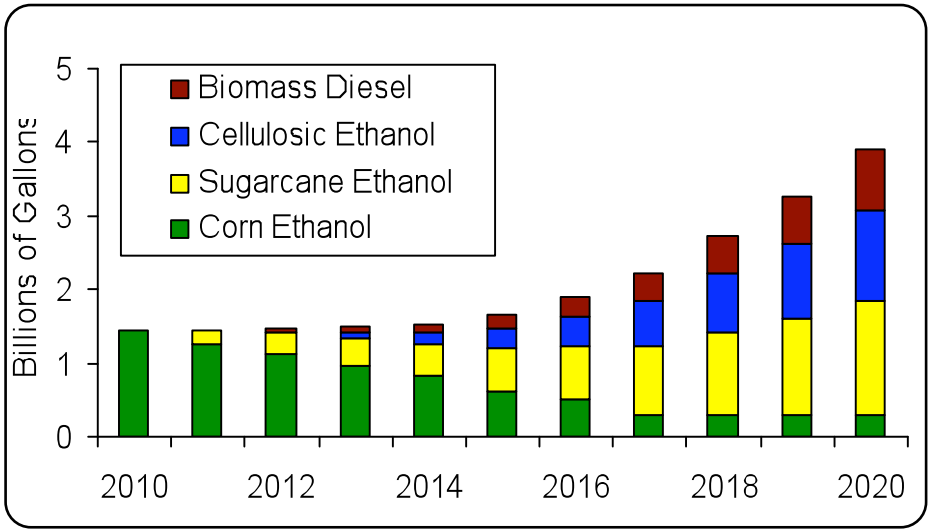
RFS-2 GHG Reductions



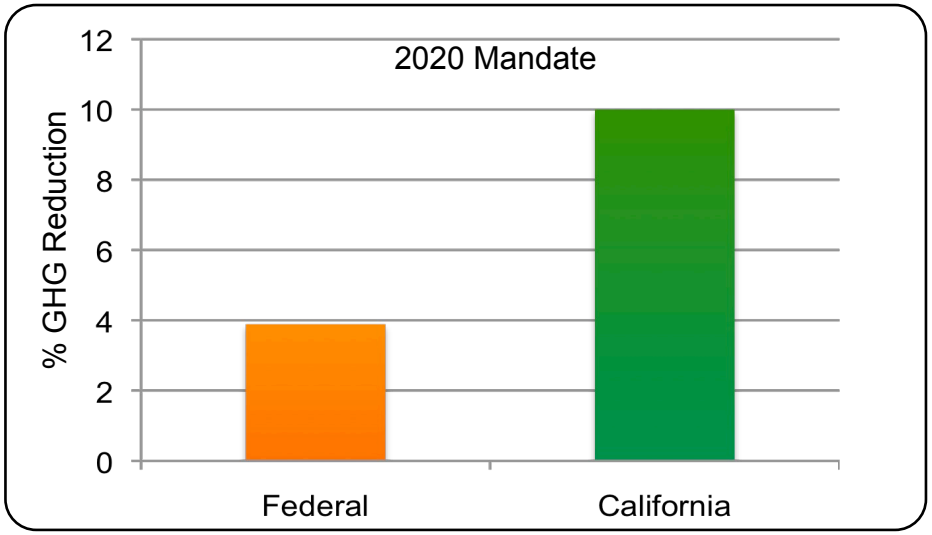
Low Carbon Fuel Standard (LCFS)

- Mandates a 10% reduction in GHG emissions from gasoline and diesel fuel by 2020
- LCFS will require the use of biofuels with lower carbon content than RFS-2
- Mary D. Nichols: *"the California proposal would boost the use of biofuels, including just about everything but imported corn." – LA Times, March 27th, 2009*

LCFS California Biofuel Volumes



LCFS GHG Reductions



Renewable Fuel Terminal Infrastructure

- RFS and LCFS will triple the volume of renewable fuel in California
  - Today's 950 MGY grows to 3000+ MGY by 2020
- Most existing terminals are at or near maximum capacity
- Existing terminal infrastructure is inadequate to meet the demand for low carbon biofuels

New, multi-modal hub terminals are needed to supply California's demand for low carbon biofuels

Renewable Fuel Terminal Infrastructure

Incremental Renewable Fuel Terminal Capacity (millions of gallons)

Year	Base Case	High Case
2012	35	38
2015	50	53
2020	209	221

- CARB's Scenario 2 fuel mix assumptions
  - Fuel cell and plug-in hybrid vehicles
  - Increased vehicle efficiency
  - 20% & 10% in-state renewable fuel production
- CEC's storage calculation methodology

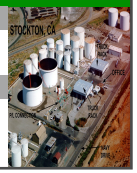
Renewable Fuel Terminal Infrastructure

- ~800 MGY of renewable fuels are received by three major hub terminals
  - Stockton, Selby and Carson
- Existing terminals are operating at or near capacity and with only Shell Carson planning a major expansion, RFS-2 and LCFS will place enormous stress on renewable fuel infrastructure
- Primafuel has developed a fully-permitted, shovel-ready terminal to provide a renewable fuel hub solution in Northern California

California Renewable Fuel Import Terminals

NuStar Stockton

Capacity:	
Storage	One (1) 113k bbl
Throughput	1.3M bbl / 55M gal per year
Logistics:	
Rail	NuStar 8-car unloading facility
Marine	NuStar Terminal
Truck	8-lane truck rack

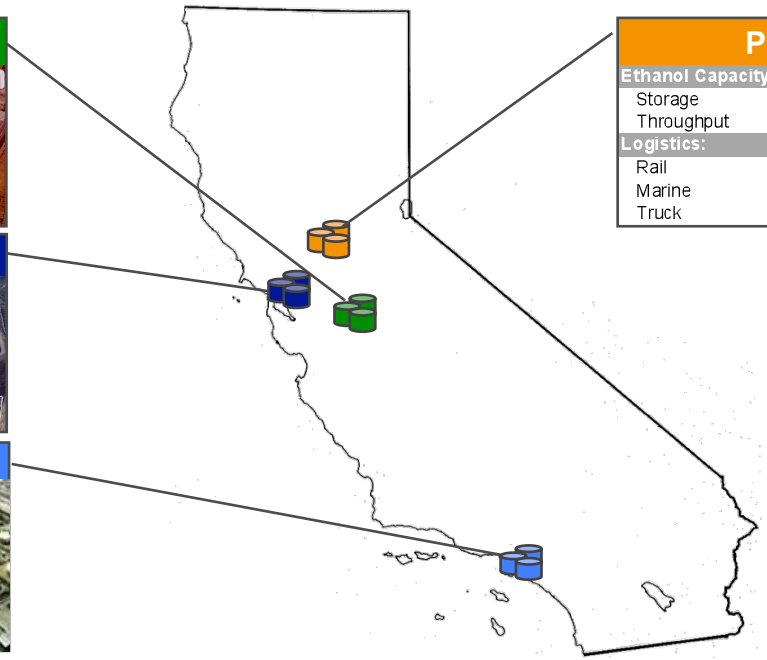


NuStar Selby

Ethanol Capacity:	
Storage	Three (3) x 200k bbl and One (1) x 30k bbl
Throughput	7M bbl / 300M gal per year
Logistics:	
Rail	NuStar 35-car unloading facility
Marine	NuStar Terminal
Truck	2-lane track rack

Shell Carson

Ethanol Capacity:	
Storage	Five (5) x 65k bbl
Throughput	12M bbl / 480M gal per year
Logistics:	
Rail:	Lomita 96-car Unit Train unloading facility
Marine:	Shell Mormon Island Terminal
Truck:	3-lane truck rack

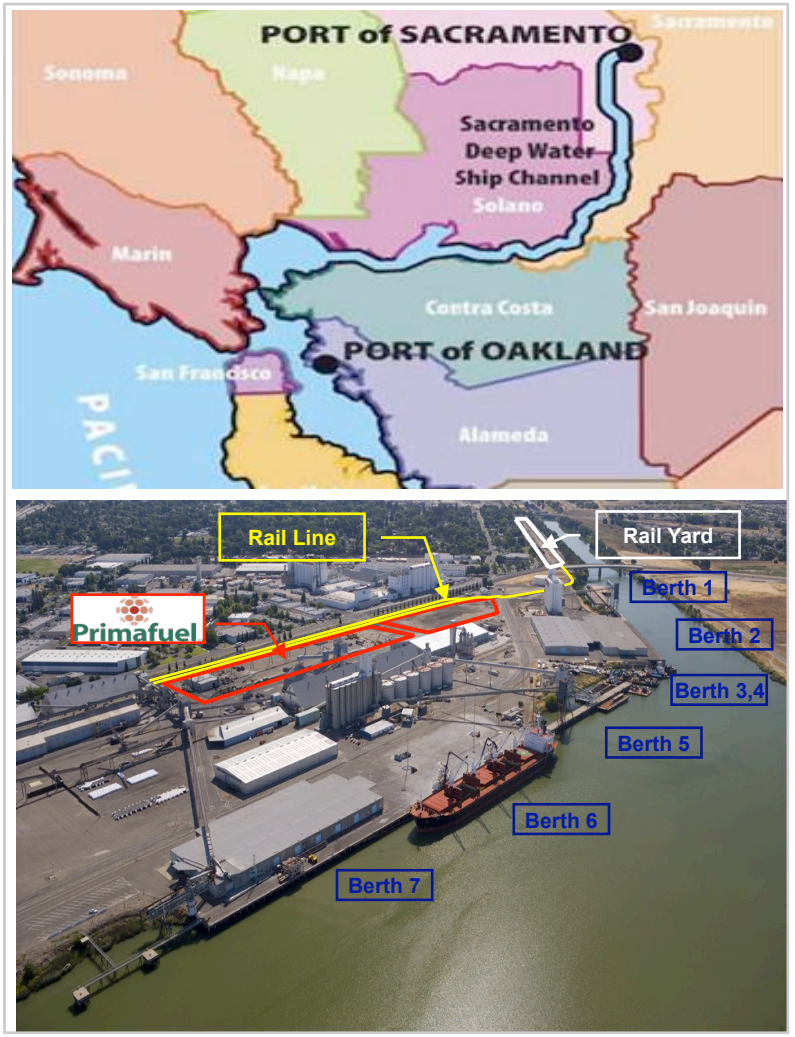


Primafuel Sacramento

Ethanol Capacity:	
Storage	Twelve (12) 80k bbl
Throughput	9.5M bbl / 400M gal per year
Logistics:	
Rail	Port of Sacramento 150-car facility
Marine	Port of Sacramento Berth 5
Truck	3-lane truck rack

Sacramento Low Carbon Fuel Terminal

- **Location:** Port of West Sacramento, CA
- **Terminal:**
  - **Capacity:** 1,000,000 bbl (42mm gal)
- **Logistics:**
  - **Marine:** Deepwater ship channel to SF Bay
  - **Rail:** BNSF and Union Pacific
  - **Truck:** Immediate access to I-5 and I-80 corridors
- **Low Carbon Fuel Hub Terminal (serving):**
  - **Sacramento:** BP, Chevron, ConocoPhillips, Shell and Kinder Morgan
  - **Chico:** Kinder Morgan
  - **Tracy:** Chevron
- **Status**
  - First fully permitted multi-modal terminal in 25 years



Primafuel's Low Carbon Fuel Standard Solutions

Sourcing

- Identifying & collaborate with lowest carbon biofuel suppliers
- Contracting supplies

Storage

- Storage in all three key CA markets (LA, Bay, Inland)
- Marine and rail import logistics
- Truck distribution to blenders

Compliance

- Certification of lower carbon pathways/ suppliers
- LCFS and RINS credit generation
- CA and EPA reporting
- Credit off-take or trading

California Energy Commission's Role

CEC Mission: "The Fuels and Transportation Division was created to focus on transportation energy and alternatives to conventional fossil fuels. The Division's mission is to ensure that adequate and reliable transportation energy is provided to the California transportation sector while balancing economic, public health, safety, and environmental consequences."

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Terminal capacity shortage threatens adequate and reliable transportation energy and the successful implementation of RFS-2 & LCFS

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Shovel-ready projects require commitments from regulated parties to be built

CEC should request RFS2 & LCFS infrastructure-specific compliance plans from regulated parties

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