



# Renewable Fuel Terminal Infrastructure

**2009 Integrated Energy Policy Report – Draft - August 2009**

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Rahul Iyer  
Chief Strategy Officer  
[rahul.iyer@primafuel.com](mailto:rahul.iyer@primafuel.com)



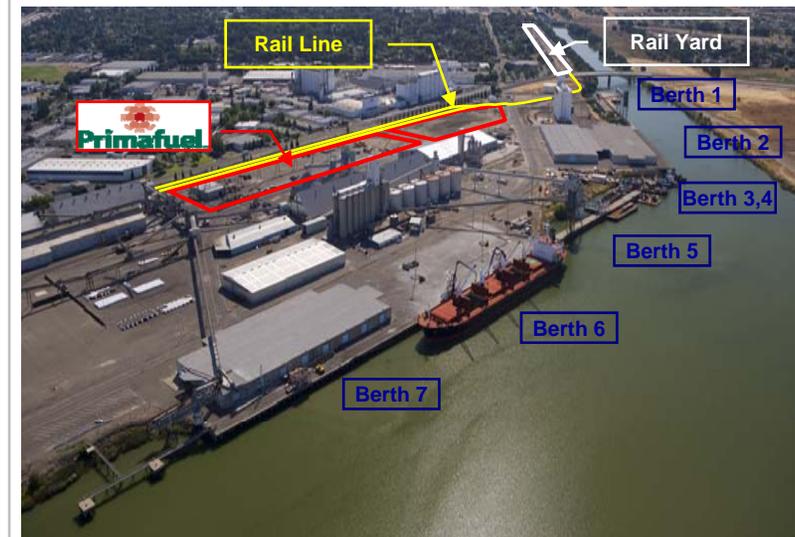
## Review of Draft Report – Fuel infrastructure assessment

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1. Quick recap of previous comments
2. Review of draft report
  - Overview
  - Critical statements/facts and conclusions

## Recap: 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



## Recap: Renewable Fuel Terminal Infrastructure

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- 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**

## Recap: California Energy Commission's Role

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**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**

## Draft Report – General response

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CEC should be proud

- Thorough report
- Well supported
- Appropriate tone of urgency

## Federal Renewable Fuel Standard (RFS-2)

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- *RFS-2 will require greater use of renewable fuels, primarily ethanol and, to a lesser extent, biodiesel (pg. 14)*
- *Low Demand Case for gasoline, total ethanol demand is forecast to rise from 1,208 million gallons in 2010 to 2,108 million gallons by 2020 (pg. 14)*
- *High Demand Case for gasoline, total ethanol demand in California is forecast to rise from 1,245 million gallons in 2010 to 2,550 million gallons by 2020 (pg. 14)*

**RFS-2 drives the volume of renewable fuel used in California**

## California Low Carbon Fuel Standard (LCFS)

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- *Currently, Brazilian sugarcane ethanol has the lowest carbon life-cycle rating of all of the different types of ethanol that are currently being produced at commercial-sized facilities (pg. 78).*
- *LCFS will change the mix of ethanol types that will be used in California, namely corn-based ethanol from the Midwest will become increasingly difficult to use, while ethanol from Brazil...will become increasingly attractive. (pg 16)*
- *Assuming that there are no credits available from over-compliance and purchase of alternative vehicle credits, staff estimates that the LCFS for gasoline will greatly increase demand for Brazilian ethanol over the near to mid-term, while also necessitating expanded use of E85. (PG. 76)*
- *The LCFS is expected to further complicate matters by pushing obligated parties to select types of ethanol that have lower carbon intensities, such as ethanol produced from sugar cane in Brazil. California's logistical infrastructure for the importation and redistribution of ethanol will need to be modified to enable a greater quantity and flexibility of ethanol imports within the next 6 to 18 months. (PG 4)*

**LCFS will alter trade routes**

## California Reformulated Gasoline Phase 3 – CaRFG-3

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- California will exceed E-10 blend wall between 2012–2013 (*pg. 14*)
- Unlikely that the low-level ethanol blend limit in California will be greater than the current 10 percent by volume (E10), even if the United States Environmental Protection Agency (U.S. EPA) ultimately grants permission for United States refiners and marketers to go to E15 (*pg. 14*)
- Assuming a maximum 10 percent ethanol content in gasoline, E85 sales in California are forecast to rise from 2 million gallons in 2010 to 1,389 million gallons in 2020 and 1,678 million gallons by 2030 under the High Demand Case for gasoline (*pg. 14*)
- CARB unlikely to alter Predictive Model in short to mid-term time frame to accommodate higher blend levels (*pg 64*)
- CaRFG-3 (E-10) is just going to effect January 1, 2010, usually takes 2-4 years for CARB to approve a new Predictive Model (*pg 64*)
- Availability of E85 will need to increase dramatically to ensure that sufficient volumes of E85 can be sold to keep pace with RFS2 requirements (*pg 64*)

**CaRFG-3 determines the allowable blends limiting compliance options**

## Importation and Blending Infrastructure

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- *...there are two pathways for this foreign ethanol to enter California: marine vessels directly from Brazil and rail shipments from another marine terminal outside of California (pg.4 )*
- *At this time, it is uncertain how much incremental ethanol could be imported into California via marine vessel (pg .91)*
- *Conversion of storage tanks from one type of service (gasoline, diesel, or jet fuel) to ethanol service does not pose a technical difficulty, but these decisions would reduce the ability of individual marine facility operators to import other petroleum products, unless overall import capacity was to increase. (pg. 91)*
- *E-85 blending infrastructure is going to be needed in much higher quantities*
- *Permitting barriers are very high in California*

**Expanding multimodal terminal capacity must be a priority**

## Crude Oil

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- *Additional storage tank capacity would have to be constructed to handle the incremental imports of crude oil, between 1.5 and 5.8 million barrels by 2015; between 2.4 and 9.5 million barrels by 2020; and between 4.0 and 15.9 million barrels of storage capacity by 2030. (pg. 7)*
- *Southern California will require an expansion of the existing crude oil import infrastructure to avoid detrimental impact on refinery operations. Although progress continues in developing Berth 408 in the Port of Los Angeles, the time required to obtain all of the necessary permits to begin construction is now more than four years. In fact, Plains All-American, a company engaged in the transportation, storage, terminalling and marketing of crude oil and refined products, still does not have all of the requisite approvals necessary for them to initiate construction. (pg 6)*

**Switching of crude storage to other products (including biofuels) is unlikely**

## Draft Report – Conclusion

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Suggestions

- Findings should be distributed far and wide
- Subsector discussions should be encouraged
- Subsector executive summaries should be created and distributed



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**Contact: 562 683 3470**

**rahul.iyer@primafuel.com**

