

## Focus on Fuels

### In This Issue

#### [TM&C Services](#)

#### [California Dreaming of Foreign Crude Oil](#)

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I spent several years in California, early in my career. I liked living there, especially because I met interesting people from many different cultures. I also found it interesting that California was frequently on the cutting edge of new trends or developments. It was the state that led the nation in many areas. Today, California continues to be a trendsetter in regulations that impact the energy industry. With all the attention California's Cap and Trade and Low Carbon Fuel Standard programs garner today, it's easy to overlook older, more impactful (to the energy industry) legislative limitations like the ban on offshore oil exploration.

### California Dreaming of Foreign Crude Oil

*by Tom Hogan*

*Quick question, "When did offshore oil exploration begin in California?" (See the bottom of this article for the answer.)* Most of the folks in the energy industry today were not out of high school when offshore oil exploration was banned in California.

### TM&C Services in Fuel Regulations

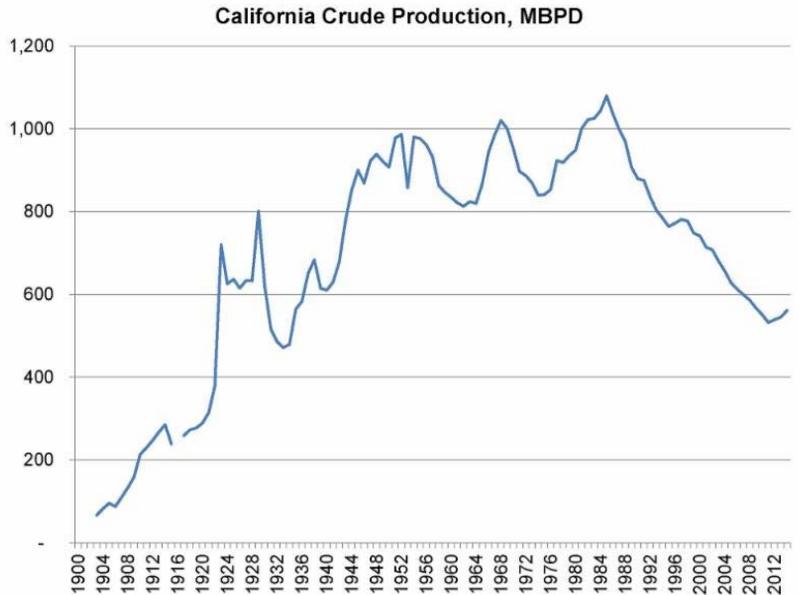
TM&C provides a full range of services in its fuels regulatory practice. Some of these services are listed below.

While the current Cap and Trade and LCFS regulations might reduce petroleum consumption, the ban on new offshore oil exploration (if extended to all production in the world) would eventually eliminate all petroleum-based energy. For example, in California, oil was originally produced from mines dug in the ground. I think we can all see the

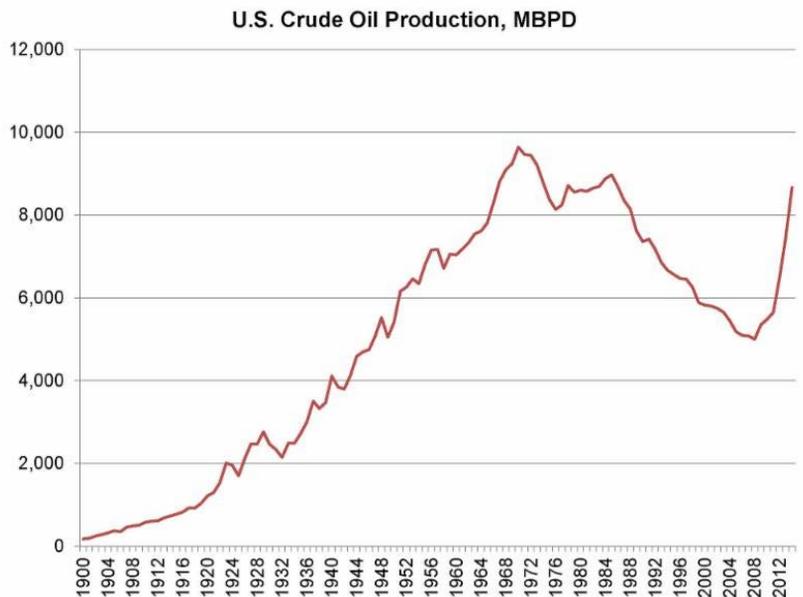
- Preparing, reviewing and submitting fuels reports, including CDX submissions.
- Facility audits for compliance with fuels programs.
- Interaction with EPA to pose fuels-related questions.
- Industry specialist assistance for required gasoline attestations.
- Industry specialist assistance for in-line blending audits.
- Assistance in setting up a fuels compliance group/program.
- Personnel reviews of compliance-related groups.
- Compliance status reviews and recommendations.
- Negotiations/consultation during EPA enforcement actions.
- 3rd-Party Engineering reviews.
- Due diligence reviews of facilities and companies in RFS RINs Program.

outcome if production technology had been frozen at "mining" crude oil. The off shore ban has resulted in the unintended (presumably) consequence of increasing California's dependence on foreign crude oil imports that are received by ship. This outcome was partially masked by the use of Alaskan crude oil, which has declined significantly in recent years.

California was once one of the most prolific crude oil producers in the U.S. and the world. State records on crude oil production date back to the early 1900s. The chart below shows California crude production since the beginning of the 20<sup>th</sup> century.

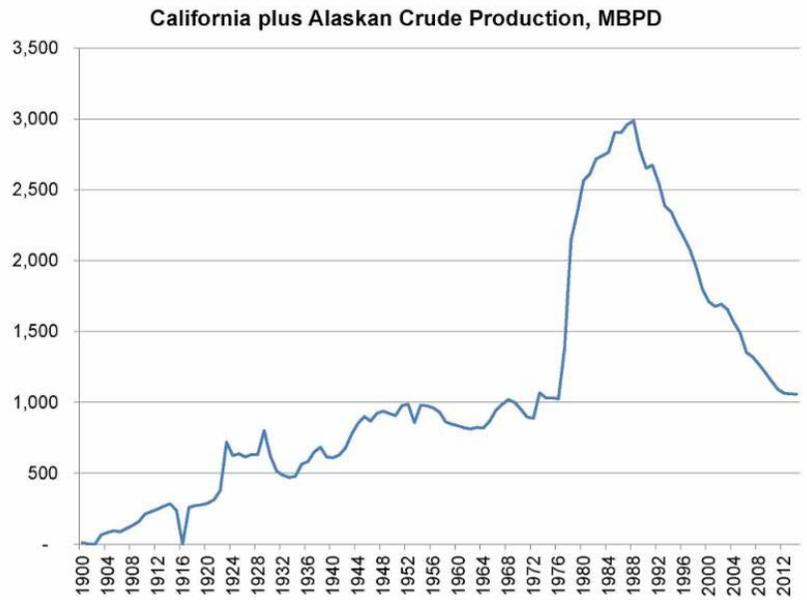


California crude oil production rose to over a million barrels per day in the 1980s. Production has fallen to less than 600 MBPD in 2014. It is interesting to compare the California crude production with the total U.S. production.

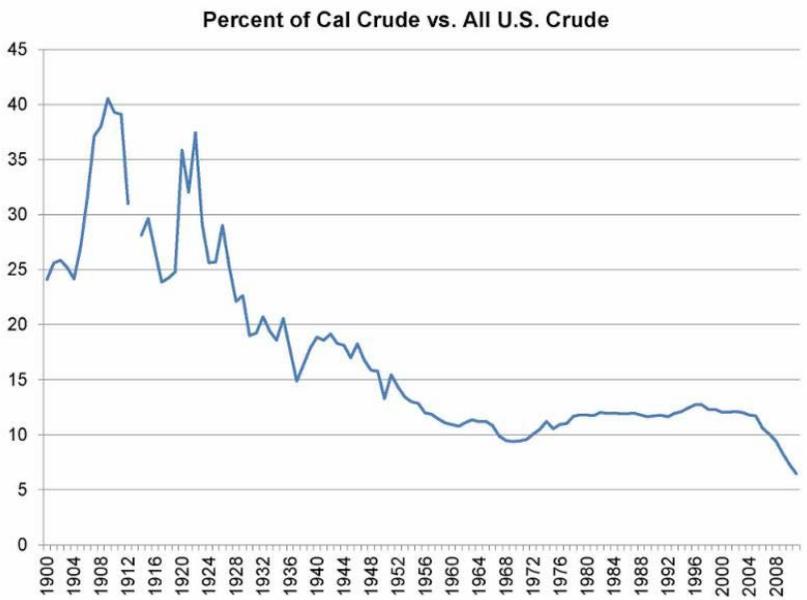


U.S. production has taken a dramatic turn up due to the tight oil revolution in many of the areas east of Rocky Mountains. California

crude oil production has not experienced the same renaissance. In fact, West Coast crude oil production (when Alaskan crude oil is included) has seen a dramatic decline from about 3 million BPD to about 1 million BPD in less than 10 years.



The waning significance of California crude is illustrated in the figure below which shows the percentage of California crude vs. total U.S. production.



California crude production was upwards of 40% of the U.S. crude production in the early 20<sup>th</sup> century. It held between 10 and 15% of U.S. production from the mid-1950s until the tight oil revolution began in recent years.

The reduction in Alaskan and California crude oil has resulted in a significant amount of imported crude oil run in the California refineries. Over 800 MBPD of foreign crude was imported into California in 2014. This is a significant amount since the refining capacity in California is only about 2 million BPD. In addition, 500 MBPD is imported from

Middle Eastern or African producers. Crude oil imports into California in 2014 are shown below.

Foreign Crude Oil imports into California <sup>1</sup> – 2014		
Country	MBPD	Percentage
Saudi Arabia	288	35.7
Iraq	176	21.8
Ecuador	134	16.7
Columbia	66	8.2
Canada	43	5.4
Angola	36	4.5
Brazil	19	2.4
Mexico	13	1.6
Russia	10	1.3
Other	19	2.4
Total	804	100.0

<sup>1</sup>Based on 2014 EIA Data

California companies that imported foreign oil and the locations of the imports are shown in the table below.

Selected Foreign Crude Oil imports into California By Company <sup>1</sup> -2014, MBPD						
Company	Location	Saudi Arabia	Iraq	Ecuador	Columbia	Canada
Chevron	El Segundo	60	17	46	15	2
	Richmond	181	3	1		
Phillips 66	Los Angeles	7		18		27
	San Francisco	17		3	1	
Tesoro	Golden Eagle	14	2	16	17	1
	Wilmington	1	19	3	4	1
	Carson	5	59	7	6	
Shell	Martinez			29		5
Valero	Benecia		27	2	2	4
	Wilmington		37	4	15	3

<sup>1</sup>Based on 2014 EIA Data

California has long discouraged the production of off-shore crude oil. Off shore reserves have been estimated at 1 billion barrels of oil. Without a significant change in the regulatory environment and the attitude of the general public, California crude oil will continue to decline and foreign imports will increase.

*Answer to the question - Off shore oil exploration began in California in 1896 when oil wells were drilled from piers built from the shore near Santa Barbara County.*

Next month, we'll review the impact of California's low carbon fuel standard regulations on the use of foreign crude. You might be surprised at the conclusions.

Please contact us if you have any questions or comments on California or any of the many regulations that impact petroleum fuels.

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