

Focus on Fuels

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Turner, Mason & Company has provided refinery yields and operating costs for various crudes in eight regions around the world since 2002 for use in calculating the Platts crude yields and netbacks. An important feature of this effort is an annual review of crude oil imports into four regions in the United States: the East Coast (PADD I), the Gulf Coast (PADD III), the Mid-Continent (PADD II) and the West Coast (PADD V). Those years have seen dramatic changes in the volume, sources and types of crudes imported into some of the regions.

Crude Oil Imports

Lower Volume, Heavier, Higher Sulfur

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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.

- Preparing, reviewing and submitting fuels reports, including CDX submissions.
- Facility audits for compliance with fuels programs.

The Atlantic Coast primarily includes the refineries in New Jersey and Pennsylvania. The Gulf Coast is the world's most recognized refinery center with over 5 million barrels per day and over 3 million barrels of refining crude capacity in Texas and Louisiana, respectively. The Mid-Continent includes large refining concentrations in Minnesota and Illinois, as well as refineries in several other states. The West Coast includes three refining centers Los Angeles area, San Francisco area and the West Coast of Washington state. The refinery capacities for these areas are shown in the following table.

U.S. Refinery Crude Capacity, thousand barrels per day¹

- 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.

Area	PADD I	PADD II	PADD III	PADD V
Description	Atlantic Coast	Mid-Continent	Gulf Coast	West Coast
	1,227	3,860	9,317	2,994

¹2015 Oil and Gas Journal

The imported and total crude oil supplied to these regions is shown in the table below.

Crude Runs ⁴ , thousand barrels per day			
Year	2010 ¹	2014 ²	2015 ³
PADD I			
Imports	1,210	672	634
Total	1,210	1,046	1,104
% Imports	100%	64%	57%
PADD II			
Imports	1,405	1,908	2,063
Total	3,206	3,519	3,581
% Imports	44%	54%	58%
PADD III			
Imports	5,151	3,552	3,220
Total	7,243	8,124	8,443
% Imports	71%	44%	38%
PADD V			
Imports	1,080	1,131	1,100
Total	2,345	2,396	2,379
% Imports	46%	47%	46%

¹August 2009 through July 2010

²August 2013 through July 2014

³August 2014 through July 2015

⁴Based on EIA data

The table shows that each of the regions has a very distinct reaction to the increasing crude production in the United States and Canada. Crude supplied to the Atlantic coast shows the most dramatic change, dropping from 100% imports in 2010 to less than 60% imports in 2015. This drop is directly related to high-quality crude oil supplied from new sources like the Bakken oil fields in North Dakota, which backed out African and European imports. PADD II imports are the only ones that increased primarily due to the increase in Canadian crude oil production. PADD III imports dropped dramatically with a decrease of about 1.9 million barrels per day. This is primarily due to increased crude oil production in the Permian Basin. The entire tight oil crude revolution and Canadian crude increases bypassed California, with essentially no change in imports from 2010 to 2015.

The source of imports to these regions has also changed over the

years.

Source of Crude Imports ³ , percent		
Year	2010 ¹	2015 ²
PADD I		
North America	19	54
Other	81	46
PADD II		
North America	88	98
Other	12	2
PADD III		
North America	24	30
Other	77	70
PADD V		
North America	16	21
Other	84	79

¹August 2009 through July 2010

²August 2014 through July 2015

³Based on EIA data

Imports from North America have increased in all four of the regions. The North American imports into PADD II are almost exclusively from Canada in 2015. Imports from Europe, Africa and the Middle East have declined dramatically. The average properties for these imports have changed in some of the regions.

Properties of Crude Imports ³		
Year	2010 ¹	2015 ²
PADD I		
Gravity, °API	33.1	29.4
Sulfur, wt%	0.7	1.3
PADD II		
Gravity, °API	27.1	25.2
Sulfur, wt%	2.2	2.5
PADD III		
Gravity, °API	27.9	23.0
Sulfur, wt%	1.8	2.6
PADD V		
Gravity, °API	29.5	29.7
Sulfur, wt%	1.3	1.6

¹August 2009 through July 2010

²August 2014 through July 2015

³Based on EIA data

In all but PADD V, the gravity of the imports has gotten heavier and the sulfur has increased. The properties of the crude imported into PADD V did not change significantly. The difference in the

properties is not due to increases in heavier, more sour crude oil, but rather backing out the lighter less sour imported crudes. These changes are due to the replacement of lighter, sweeter imports with the new tight oil production from the Bakken and Permian Basin. The recent slide in crude oil prices is likely to reduce the rate of increase in domestic crude oil production and may lead to stagnate to lower domestic crude oil production.

None of these results are too surprising. Increasing domestic light sweet crude production backed out light sweet crude oil imports; however, the reaction of the four regions is related to the distribution system and the locations of the new crude production. The Atlantic Coast refineries were originally built near the large population centers to supply products from domestic Pennsylvania crude oil plus imports. The domestic production dried up long ago and the area became dependent on imported crude oil plus products received from the Colonial and Explorer pipelines, which originate in PADD III. PADD II is land-locked and used to receive imported crude oil from pipelines that originated in the Gulf Coast. The growing supply of crude oil from Canada pushed out the imports from the South and the light tight oil production from the Bakken field reduced the domestic crude flowing into the Mid-Continent. PADD III is a huge refining center with a lot of capacity sited on the water. As tight oil from the Permian Basin became available, waterborne crude oil imports were backed out. PADD V has always been almost completely isolated from the petroleum distribution system in the rest of the country. This isolation was originally geographic with the Rocky Mountains creating a natural barrier to laying pipelines to supply either crude oil or products to the huge population centers in Los Angeles and San Francisco. Another growing factor in the hydrocarbon isolation of California is regulatory. Recent opposition to carbon energy sources has stalled the acceptance of Canadian or tight oil crude usage in California.

Turner, Mason & Company tracks these changes in our effort for Platts and also conducts a semiannual review of crude oil and product developments and expectations for the next twenty years, which is published in our **CRUDE AND REFINED PRODUCTS OUTLOOK**. Contact us if you have any questions on crude yields or would like more information on subscribing to **THE OUTLOOK**.

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