

## This Week in Petroleum

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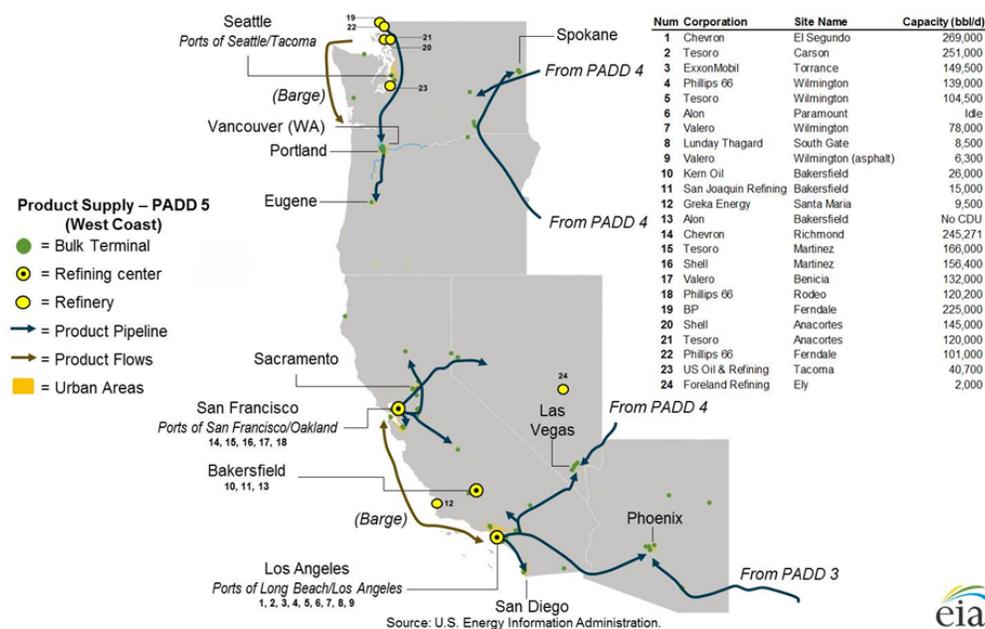
### Potential market implications of outage at ExxonMobil's Torrance, California refinery

On February 18, an explosion and fire occurred at the ExxonMobil refinery in Torrance, California. The Torrance refinery, the third-largest refinery in southern California, has about 20% of the region's fluid catalytic cracking (FCC) capacity and is an important source of gasoline and distillate supply. ExxonMobil's website indicates that Torrance produces about 117,000 barrels per day (bbl/d) of gasoline (about 15-20% of southern California's supply). Based on publicly available information, it can be estimated that Torrance also produces about 50,000 bbl/d of distillate and jet fuel (about 10% of southern California supply).

Unplanned refinery outages can have noticeable impacts on liquid fuel markets, disrupting supplies of gasoline and distillate, particularly in regions that are tightly balanced, such as Petroleum Administration for Defense District (PADD) 5 (West Coast). While refineries make arrangements for alternative sources of supply during periods of planned maintenance to ensure that supply obligations are met, it sometimes takes days or weeks for markets to adjust to the sudden loss of production when an unexpected outage occurs. As a result, unplanned outages often result in a reduction in supply that causes prices to increase, sometimes dramatically. The severity and duration of these price spikes depend on how quickly the refinery issue can be resolved and how soon supply from alternative sources can reach the affected market. The recent incident at Exxon's Torrance refinery in southern California is a case in point.

PADD 5 is relatively isolated from other U.S. markets and located far from international sources of supply, so the region is very dependent on in-region production to meet demand. Additionally, California's more-restrictive gasoline specifications (CARBOB) limit the availability of supply from other markets. Mainland PADD 5 has three distinct supply/demand centers (Figure 1) and is geographically separated from other markets by mountains to the east and the Pacific Ocean to the west. As a result, moving product to southern California requires long lead times.

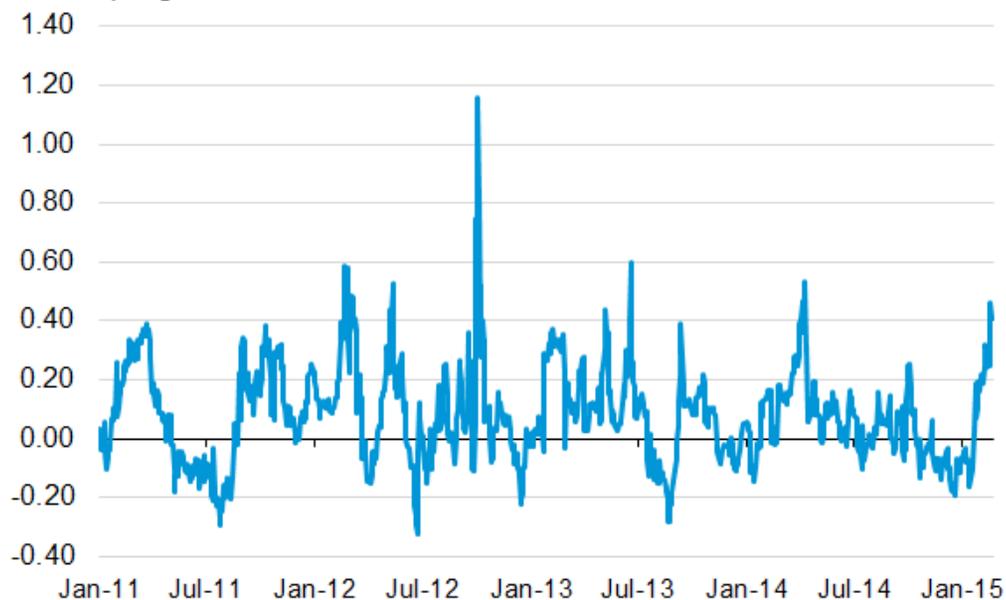
Figure 1. West Coast petroleum product supply map



West Coast product markets reacted immediately to the potential loss of supply from the Torrance refinery. Spot prices in Los Angeles (LA) for CARBOB (California Reformulated Blendstock for Oxygenate Blending) gasoline increased \$0.22 to \$2.02 per gallon (gal) between February 17 and February 23. Spot CARBOB prices increased from \$0.25 premium above the New York Mercantile Exchange (Nymex) Reformulated Blendstock for Oxygenate Blending (RBOB) front month futures contract, a standard pricing basis for gasoline, to \$0.41 above over the same time.

This rapid price response is not unusual and is similar to what happened following past unplanned outages. During a series of West Coast supply disruptions in 2012, LA-CARBOB spot prices spiked higher to \$1.16/gal over the Nymex RBOB front month contract (Figure 2). The 2012 spot price spikes, as well as price spikes during supply disruptions in California in 2008 and 2009, resulted in price increases that persisted for an average of eight weeks and took, on average, two weeks to be passed through to retail prices.

**Figure 2. LA CARBOB minus front month NYH RBOB**  
dollars per gallon



Source: U.S. Energy Information Administration, based on Thomson Reuters.

On February 23, average regular retail gasoline prices in California were \$0.63/gal higher than the U.S. average, at \$2.96/gal. California retail gasoline prices are typically \$0.30-\$0.40/gal above the national average retail gasoline price. PADD 5 as a whole had an average price of \$2.76/gal.

The most immediate source of replacement product supply on the West Coast is regional inventories. As of February 20, diesel fuel inventories in PADD 5 are above the five-year average, and as a result supply is likely to be adequate assuming no additional disruptions or increases in demand. As of February 20, total PADD 5 gasoline inventories were just under 31 million barrels, sufficient to supply approximately 20 days of demand. However, EIA does not collect product inventories below the PADD level, and therefore does not know the inventory held in southern California. In addition, product exports from the region, to the extent they meet CARBOB specifications (and not all do), could be diverted to meet local demand.

Replacement supply could also reach southern California from a variety of locations outside the region, with differing logistical limitations and lead times. Potential sources of alternative product supply include refineries in northern California and the Pacific Northwest, the U.S. Gulf Coast (USGC), and imports.

Refineries in northern California as well as Tesoro's Anacortes refinery and BP's Cherry Point refinery in Washington State can produce CARBOB. In addition, some refineries along the U.S. Gulf Coast (USGC), a region that produces more gasoline than is consumed locally, and can also produce CARBOB. Resupply from these refineries, which would require a U.S. coast-wise compliant vessel, could take three to four weeks to reach southern California, taking into account both the time needed to manufacture and deliver CARBOB. CARBOB may also be available from SK Energy's refinery in South Korea. Shipping product from Asia could take about four weeks.

EIA will continue to monitor West Coast product prices as the market responds to the unexpected loss of supply. As with previous disruptions, prices should stabilize as more information about the severity and duration of the expected outage becomes available.

### **Gasoline and diesel fuel prices increase**

The U.S. average price of retail gasoline rose six cents from the week prior to \$2.33 per gallon as of February 23, 2015, down \$1.11 per gallon from the same time last year. The West Coast price increased 14 cents to \$2.76 per gallon. East Coast and Rocky Mountain prices rose five cents, to \$2.30 per gallon and \$2.04 per gallon, respectively. Midwest and Gulf Coast prices increased four cents, to \$2.27 per gallon and \$2.11 per gallon, respectively.

The U.S. average price of diesel fuel increased four cents to \$2.90 per gallon, \$1.12 per gallon less than the same time last year. Only the Rocky Mountain price decreased, falling by a penny to \$2.76 per gallon. The West Coast price increased seven cents to \$3.07 per gallon. The East Coast price rose five cents to \$3.01 per gallon, followed by the Midwest price which rose three cents to \$2.83 per gallon. The Gulf Coast price increased by a penny to \$2.80 per gallon.

### **Propane inventories fall**

U.S. propane stocks decreased by 2.2 million barrels last week to 59.2 million barrels as of February 20, 2015, 32.6 million barrels (122.1%) higher than a year ago. Gulf Coast inventories decreased by 1.0 million barrels and East Coast inventories decreased by 0.7 million barrels. Midwest inventories decreased by 0.5 million barrels while Rocky Mountain/West Coast inventories remained unchanged. Propylene non-fuel-use inventories represented 7.5% of total propane inventories.

### **Residential heating oil price increases while residential propane price decreases**

As of February 23, 2015, residential heating oil prices averaged nearly \$3.19 per gallon, almost 15 cents per gallon higher than last week, and \$1.06 per gallon less than last year's price for the same week. Wholesale heating oil prices averaged \$2.30 per gallon, nearly 19 cents per gallon higher than last week and almost \$1.09 per gallon lower when compared to the same time last year.

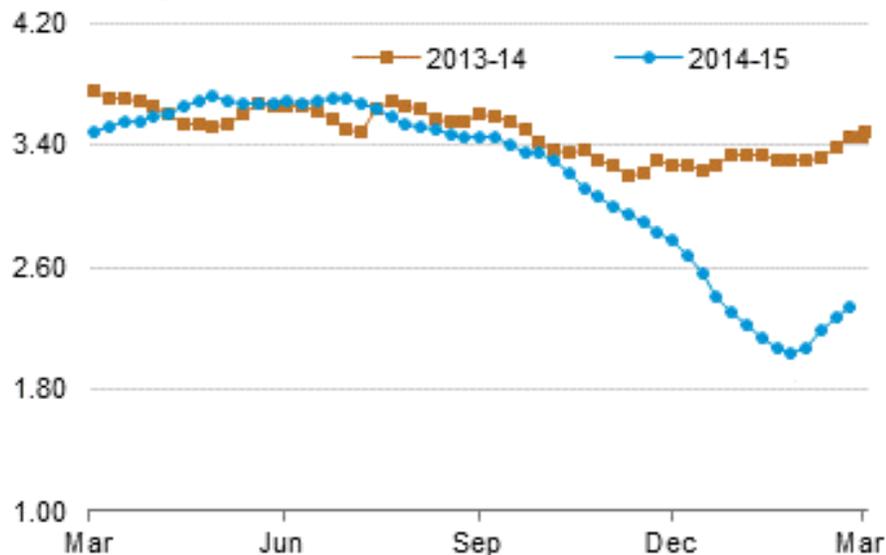
Residential propane prices averaged \$2.35 per gallon, less than 1 cent per gallon lower than last week, and \$1.12 per gallon less than the price at the same time last year. The average wholesale propane price increased by almost 3 cents per gallon this week to 75 cents per gallon, \$1.09 per gallon lower than the February 24, 2014 price.

***For questions about This Week in Petroleum, contact the Petroleum Markets Team at 202-586-0786.***

**Retail prices (*dollars per gallon*)**

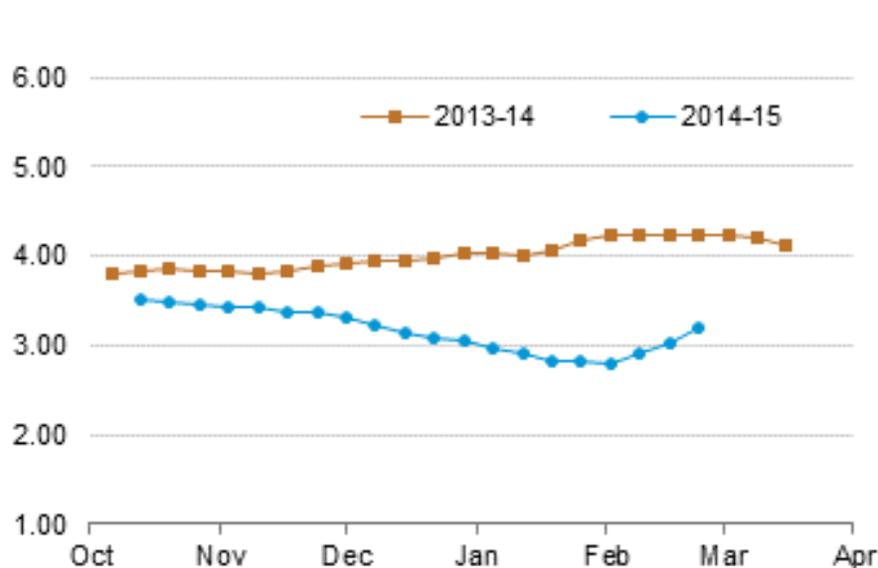
### U.S. regular gasoline prices

dollars per gallon



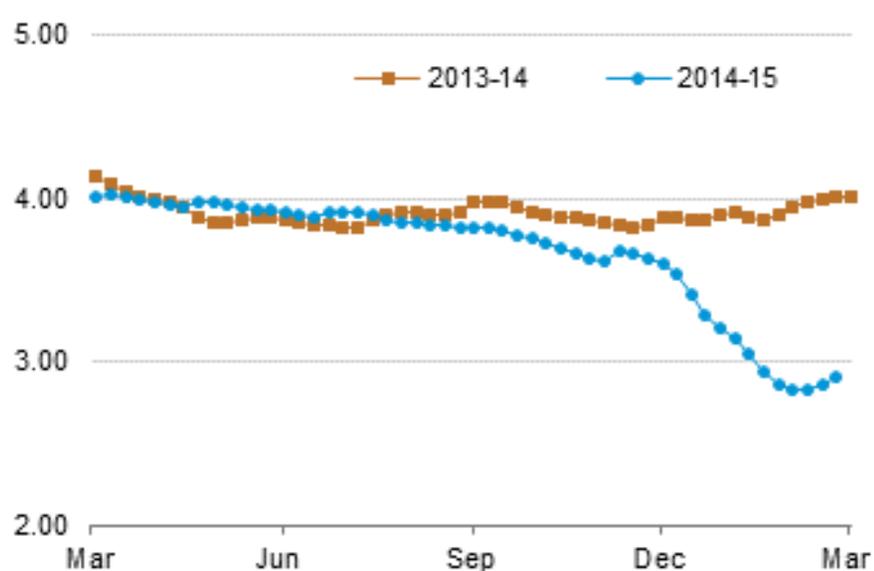
### Residential heating oil prices

dollars per gallon



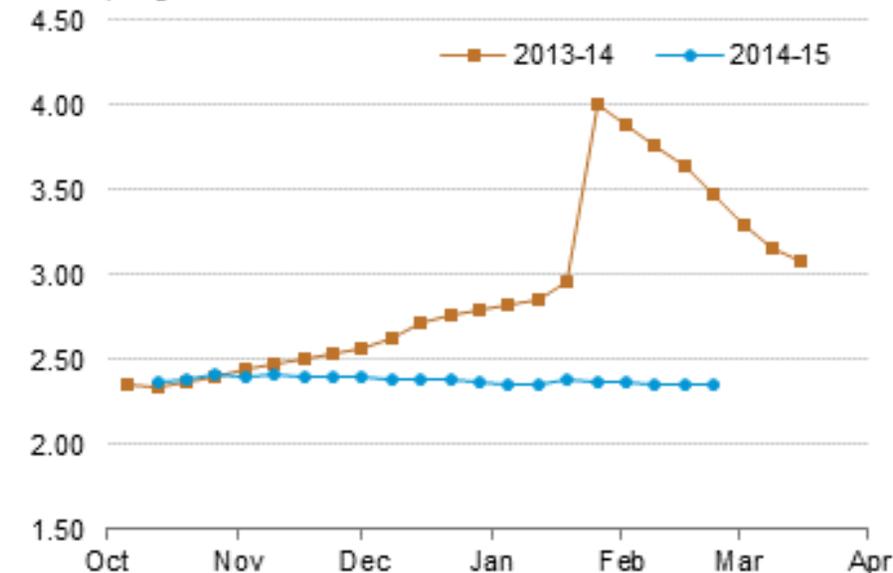
### U.S. on-highway diesel fuel prices

dollars per gallon



### Residential propane prices

dollars per gallon



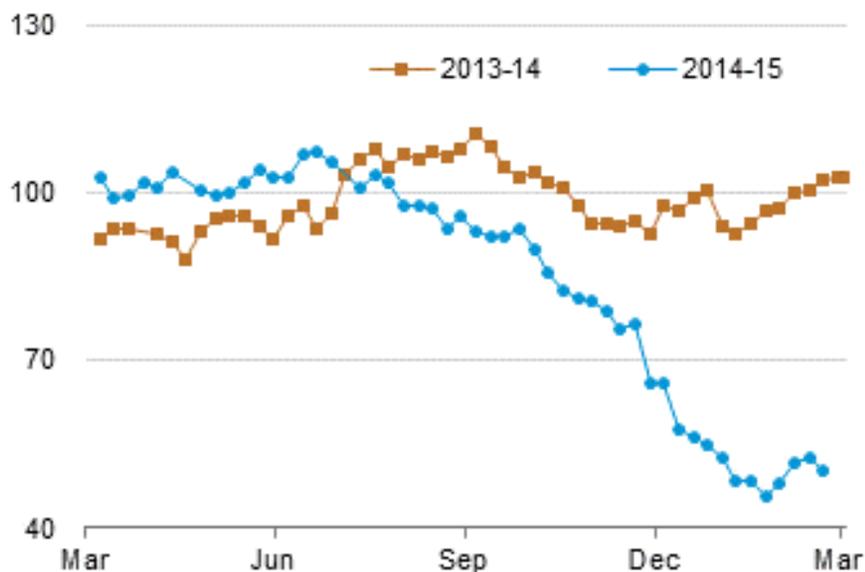
	Retail prices	Change from last	
	02/23/15	Week	Year
Gasoline	2.332	0.058	-1.112
Diesel	2.900	0.035	-1.117
Heating Oil	3.185	0.147	-1.057
Propane	2.353	-0.003	-1.124

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**Futures prices (dollars per gallon\*)**

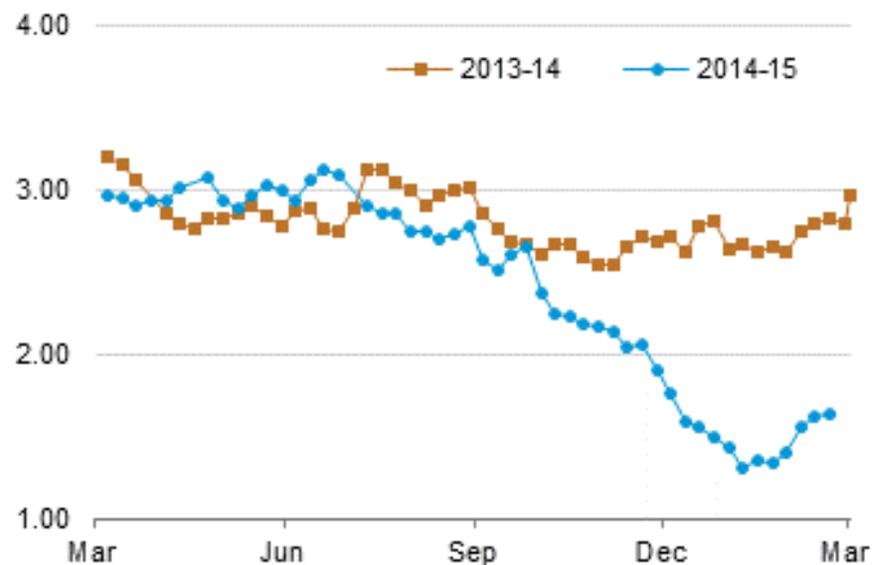
### Crude oil futures price contract 1

dollars per barrel



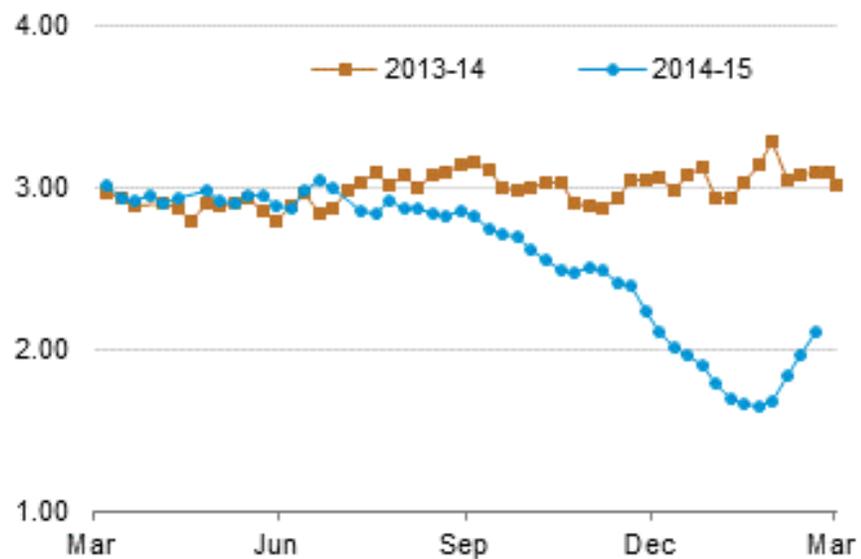
### RBOB gasoline futures price contract 1

dollars per gallon



### Heating oil futures price contract 1

dollars per gallon



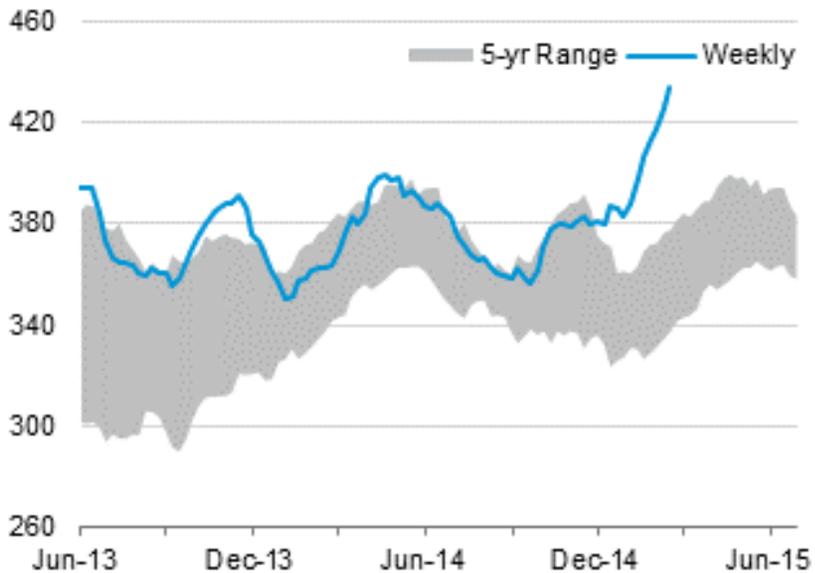
	Futures prices	Change from last	
	02/20/15	Week	Year
Crude oil	50.34	-2.44	-51.86
Gasoline	1.641	0.015	-1.192
Heating oil	2.112	0.141	-0.987

*\*Note: Crude oil price in dollars per barrel.*

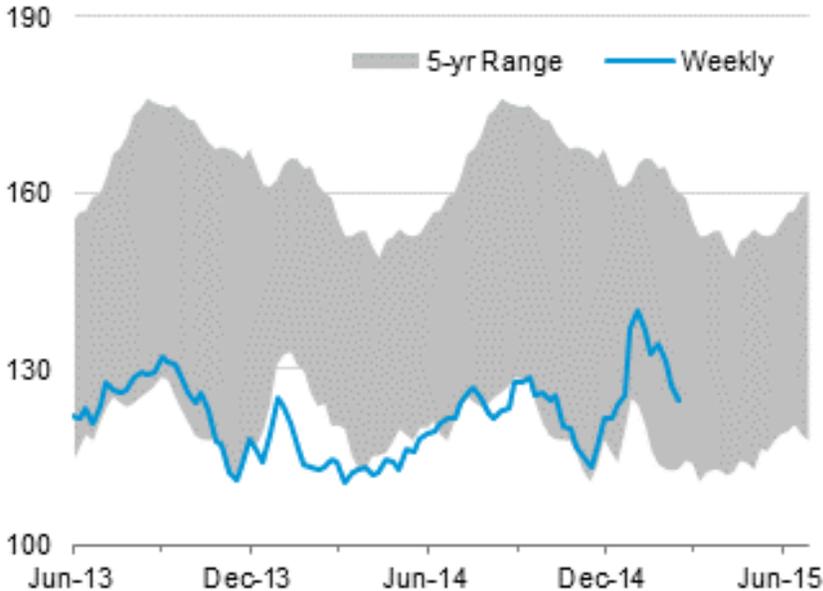
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### Stocks (million barrels)

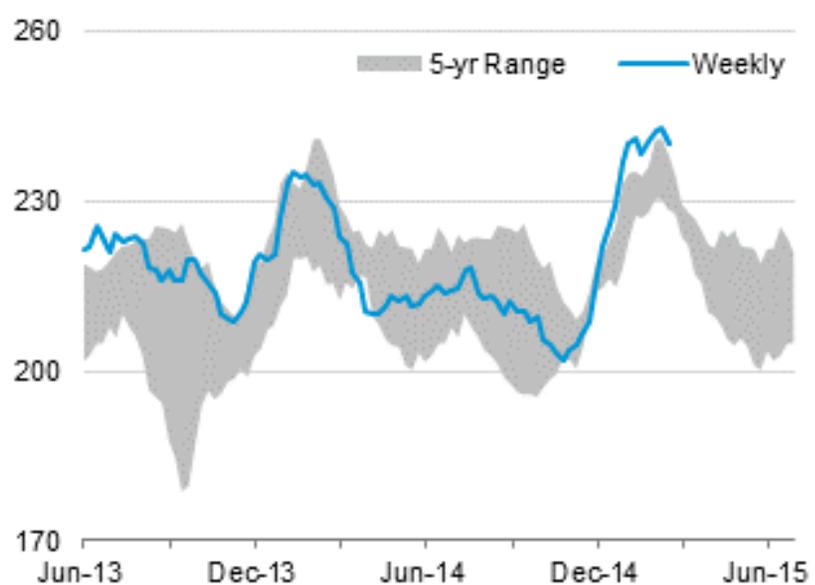
U.S. crude oil stocks  
million barrels



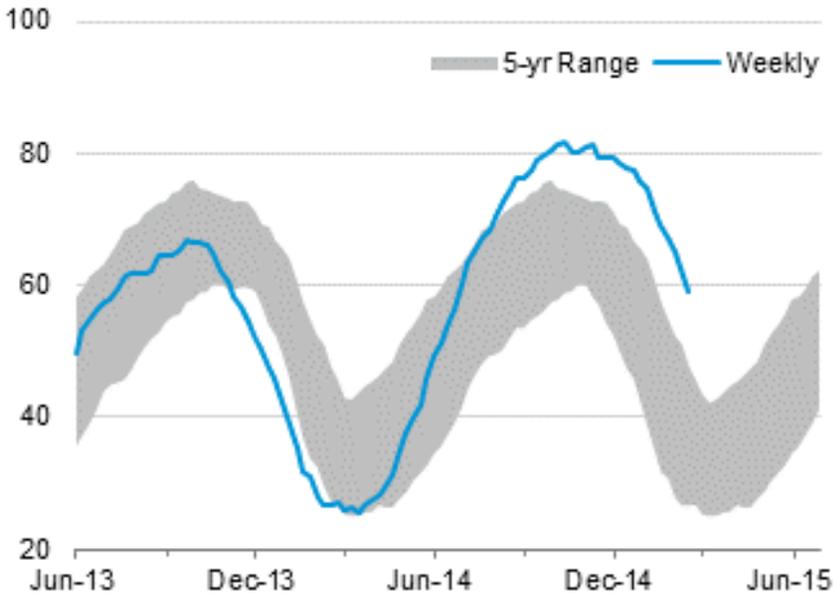
U.S. distillate stocks  
million barrels



U.S. gasoline stocks  
million barrels



U.S. propane stocks  
million barrels



	<b>Stocks</b>	<b>Change from last</b>	
	<b>02/20/15</b>	<b>Week</b>	<b>Year</b>
Crude oil	434.1	8.4	71.7
Gasoline	240.0	-3.1	9.4
Distillate	124.7	-2.7	11.6
Propane	59.238	-2.227	32.562