

OPIS U.S. Refined Products Market Methodology

Latest update: September 2026

This document outlines the methodology employed by OPIS, a Dow Jones company, in the assessment of daily U.S. Refined Products prices.

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Introduction

OPIS methodologies are developed in consultation with market stakeholders to ensure fair, accurate, and representative price assessments. Each benchmark is underpinned by clearly defined processes that reflect actual market behavior and conditions. [View OPIS Spot Price Assessment General Methodology here.](#)

Price Discovery

OPIS applies a full-day assessment process across all covered markets, gathering, testing and evaluating pricing data throughout the trading session. OPIS U.S. Refined Products spot price assessments are published daily.

OPIS does not adjust spot market prices to account for taxes and fees, such as the Superfund fee and Oil Spill Liability Trust Fund fee. The value of taxes and fees may be built into spot discounts or premiums to futures by traders in their transactions, but OPIS does not make any further adjustment to its refined spot assessments with reference to these taxes and fees.

Data submission timeframes are specified in this guide for each region's price assessments. Information on publishing dates is made publicly available through the [OPIS Holiday Publishing Schedule](#). Registered stakeholders are notified in advance of any schedule changes.

OPIS Average prices represent the numerical mid-point of the OPIS Low and the OPIS High, assessed using spot market data discovered during the data submission timeframe. Locate the market specific OPIS Price Code reference and API codes [here](#).

US West Coast

OPIS assesses daily Low, High, and Average prices and cash differentials for U.S. West Coast Refined Products, as well as some weighted averages. U.S. West Coast refined products Last and Close prices are representative of the OPIS Average rounded to two decimal places. OPIS Weighted Average prices are calculated from confirmed transactions versus NYMEX, with weight assigned based on the frequency of reported differentials and the volume of trades executed at each differential.

Gasoline cash differentials are assessed versus the NYMEX RBOB futures, and distillates cash differentials are assessed versus the NYMEX ULSD futures.

Data Submissions

U.S. West Coast Refined Products assessments reflect pricing information submitted between 9 a.m. ET to 5 p.m. ET.

Los Angeles Refined Products

Gasoline Products & Specifications

- **CARBOB Reg:** California Reformulated Blendstock for Oxygenate Blending, 84 octane.

- **CARBOB Pre:** California Reformulated Blendstock for Oxygenate Blending, 88.5 octane.
- **AZRBOB Reg:** Arizona Reformulated Blendstock for Oxygenate Blending, 84 octane.
- **AZRBOB Pre:** Arizona Reformulated Blendstock for Oxygenate Blending, 88.5 octane.
- **Sub-Oct Reg:** Sub-octane regular, 84 octane.
- **Sub-Oct Pre:** Sub-octane premium, 88.5 octane.
- **CARB RFG Reg:** Not a fungible spot product; 90% spot LA CARBOB Reg and 10% spot LA ethanol.
- **CARB RFG Pre:** Not a fungible spot product; 90% spot LA CARBOB Pre and 10% spot LA ethanol.

Gasoline RVP Schedule: RVP Specifications follow the Kinder Morgan West Line pipeline system. During LA CARBOB's transition from high-RVP to low-RVP, OPIS prompt prices will represent a cycle-specific, high-RVP gasoline blend through the end of the first cycle of February. After the first pipeline cycle in February freezes, OPIS prompt LA CARBOB assessments will revert back to standard Any timing.

When prompt LA CARBOB assessments reflect the February first cycle only, high-RVP gasoline specification, the first forward physical price assessment will be reflective of a February Any timing low-RVP LA CARBOB until the prompt market transitions to the low-RVP gasoline specification at the beginning of February's second pipeline cycle.

For the latest schedule, please see the OPIS U.S. Refined Spot Markets RVP Calendar at <https://www.opis.com/about/rvp-calendar/>

Distillate Products & Specifications

- **CARB Diesel:** California Air Resources Board specification ultra-low-sulfur diesel. 11 ppm sulfur maximum, 40 cetane minimum, 30° API maximum gravity, 10% aromatics maximum (or 35% if produced within the restrictions of a CARB Executive Order); may contain up to 5% renewable diesel.
- **ULSD:** 15 ppm sulfur maximum, 40 cetane minimum, 35% aromatics maximum; may contain up to 5% renewable diesel.
- **Jet fuel:** 0.3% maximum sulfur, 37°-51° API gravity, 105° F minimum flash point, minus 40° F maximum freeze point.

Location

- **LA CARBOB Reg, LA CARBOB Pre, AZRBOB Reg, and AZRBOB Pre:** Originate from Kinder Morgan West Line.
- **CARBOB GATX Reg:** Originating at or delivered to the GATX storage terminal.
- **LA CARB Diesel:** Originates from Kinder Morgan West Line and has a GATX Option.
- **LA ULSD:** Originates from Kinder Morgan West Line.
- **LA Jet:** Originates from Kinder Morgan West Line and has a pump-over option to Los Angeles International Airport storage facility (LAX).

Timing

- **LA CARBOB:** Any current month, and three forward months
- **LA CARB Diesel:** Any current month, and one forward month

- **LA ULSD:** Any current month, and one forward month
- **LA Jet Fuel:** Any current month, and two forward months

Buyer has the choice of taking product delivery during any of the four Kinder Morgan pipeline cycles throughout the current month schedule. Low carbon fuel standard obligations are passed on to the spot buyer with each pipeline shipment.

Roll: OPIS works with Kinder Morgan to determine each month's pipeline schedule, which is fluid from month to month. If the final trade freeze date for a month's pipeline schedule falls on a weekend or publishing holiday, the timing roll will take place on the following business day.

- Los Angeles diesel fuel products timing typically rolls between the 16th and 20th of the month.
- Los Angeles gasoline products timing typically rolls between the 21st and 25th of the month.
- Los Angeles jet fuel timing rolls eight calendar days before the end of the month. If the eighth calendar day falls on a weekend or a publishing holiday, LA jet fuel timing rolls on the following business day.

Volume: Minimum volume 10,000 barrels.

Pricing Mechanism

- US cts/gal
- US \$/gal

Los Angeles Line Space Products

- **West Line Line Space**
- **CALNEV Line Space (Las Vegas)**

Location

- **West Line Line Space:** Line space for gasoline and diesel fuel originating from Los Angeles with delivery into Phoenix, Arizona.
- **CALNEV Line Space (Las Vegas):** Line space for gasoline and diesel fuel originating from Los Angeles with delivery into Las Vegas, Nevada.

Timing: Prompt month delivery

Roll: Los Angeles Line Space products follow the Los Angeles gasoline roll schedule.

Volume

- **West Line Line Space:** Minimum volume 10,000 barrels.
- **CALNEV Line Space (Las Vegas):** Minimum volume 5,000 barrels.

Pricing Mechanism: Cash differential cts/gal versus standard pipeline tariffs and fees.

Los Angeles Swaps Products

- **CARBOB Swap**
- **CARB Diesel Swap**
- **Jet Fuel Swap**

Timing

- **CARBOB Swap:** Two forward months and two forward quarters.
- **CARB Diesel Swap:** Two forward months and one forward quarter.
- **Jet Fuel Swap:** Two forward months and one forward quarter.

Daily Pricing Mechanism: Cash differential in cts/gal versus NYMEX

San Francisco Refined Products

Gasoline Products & Specifications

- **CARBOB Reg:** California Reformulated Blendstock for Oxygenate Blending, 84 octane.
- **CARBOB Pre:** California Reformulated Blendstock for Oxygenate Blending, 88.5 octane.
- **Sub-Oct Reg:** Sub-octane regular, 84 octane.
- **Sub-Oct Pre:** Sub-octane premium, 88.5 octane.
- **CARB RFG Reg:** Not a fungible spot product, 90% spot SF CARBOB Reg and 10% spot SF ethanol.
- **CARB RFG Pre:** Not a fungible spot product, 90% spot SF CARBOB Pre and 10% spot SF ethanol.

Gasoline RVP Schedule: RVP Specifications follow Kinder Morgan's North Line-Zero Line pipeline system. During SF CARBOB's transition from high-RVP to low-RVP, OPIS prompt prices will represent a cycle-specific, high-RVP gasoline blend through the end of the first cycle of March. After the first pipeline cycle in March freezes, OPIS prompt SF CARBOB assessments will revert back to standard Any timing.

When prompt SF CARBOB assessments reflect the March first cycle only, high-RVP gasoline specification, the first forward physical price assessment will be reflective of a March Any timing low-RVP CARBOB until the prompt market transitions to the low-RVP gasoline specification at the beginning of March's second pipeline cycle.

For the latest schedule, please see the OPIS U.S. Refined Spot Markets RVP Calendar at <https://www.opis.com/about/rvp-calendar/>

Distillate Products & Specifications

- **CARB Diesel:** California Air Resources Board specification ultra-low-sulfur diesel. 11 ppm sulfur maximum, 40 cetane minimum, 30° API maximum gravity, 10% aromatics maximum (or 35% if produced within the restrictions of a CARB Executive Order); may contain up to 5% renewable diesel.

- **ULSD:** 15 ppm sulfur maximum, 40 cetane minimum, 35% aromatics maximum; may contain up to 5% renewable diesel.
- **Jet fuel:** 0.3% maximum sulfur, 37°-51° API gravity, 105° F minimum flash point, minus 40° F maximum freeze point.

Location: San Francisco gasoline and distillates products originate from Kinder Morgan's North Line pipeline system.

Timing: Any current month.

Buyer has the choice of taking product delivery during any of the four Kinder Morgan pipeline cycles throughout the current month schedule. Low carbon fuel standard obligations are passed on to the spot buyer with each pipeline shipment.

Roll: OPIS works with Kinder Morgan to determine each current month's pipeline schedule, which is fluid from month to month. If the final trade freeze date for a month's pipeline schedule falls on a weekend or publishing holiday, the timing roll will take place on the following business day.

- San Francisco gasoline products timing typically rolls between the 18th and 24th of the month.
- San Francisco diesel fuel products timing typically rolls between the 21st and 24th of the month.
- San Francisco jet fuel prompt timing rolls eight calendar days before the end of the month. If the eighth calendar day falls on a weekend or a publishing holiday, SF jet fuel prompt timing rolls on the following business day.

Volume: Minimum volume 5,000 barrels.

Pricing Mechanism

- US cts/gal
- US \$/gal

San Francisco Line Space Product

- North Line Line Space (Reno)

Location: North Line Line Space for gasoline and diesel fuel originating from San Francisco with delivery into Reno, Nevada.

Timing: Prompt month

Roll: North Line Line Space follows the San Francisco diesel fuel roll schedule.

Volume: Minimum volume of 5,000 barrels.

Pricing Mechanism: Cash differential US cts/gal versus standard pipeline tariffs and fees.

Pacific Northwest Refined Products

Gasoline Products & Specifications

- Sub-Oct Reg: 84 octane
- Sub-Oct Pre: 90 octane

Gasoline RVP Schedule

- Pacific Northwest gasoline assessments follow the RVP schedule for BP's Olympic Pipeline system. Trades for prompt gasoline at Portland's regional terminals may be considered in the assessment process during seasonal gasoline RVP transitions.

Distillate Products & Specifications

- **ULSD:** 15 ppm sulfur maximum, 40 cetane minimum, 35% aromatics maximum; may contain up to 5% renewable diesel.
- **B5:** ultra-low-sulfur diesel blended with 5% biodiesel. The 5% biodiesel component has to be canola and/or other blends but cannot be animal fat.
- **Jet Fuel:** 0.3% maximum sulfur, 37°-51° API gravity, 105° F minimum flash point, minus 40° F maximum freeze point.

Locations

- **Pacific Northwest:** Gasoline and diesel are FOB Portland and reflect barrels originating from Olympic Pipeline and pump over from Kinder Morgan Willbridge and Nustar Portland terminals.
- **Seattle:** Gasoline is FOB Seattle and reflects barrels originating from Olympic Pipeline.
- **Pacific Northwest:** Jet fuel is FOB Seattle barge.

Timing: Prompt, delivering up to five business days, including same-day delivery.

Roll: Prompt timing rolls on the first business day of the month. The roll timing of the NYMEX reference month reflects trade liquidity.

Volume: Minimum volume 5,000 barrels.

Pricing Mechanism

- US cts/gal
- US \$/gal

West Coast Crude Oil

Crude Oil Products and Specifications

- **ANS:** API specific gravity is 29°-32° and sulfur should not exceed 1.1%.

Location: Delivered into the U.S. West Coast.

Timing: Delivery within two calendar months from the first publishing day on or after the 10th of each month. Example: on Jan. 10, OPIS ANS prices reflect delivery in March, and on Feb. 10, ANS prices reflect delivery in April.

Volume: Minimum volume 300,000 bbl

Pricing Mechanism: Outright prices in US \$/bbl

Los Angeles 3-2-1 Crack Spread

Calculation

- **Los Angeles 3-2-1- Crack Spread** = $((\text{OPIS LA CARBOB in } \$/\text{bbl} \times 2 + \text{OPIS LA CARB Diesel in } \$/\text{bbl})/3) - \text{OPIS ANS } \$/\text{bbl}$

Pricing Mechanism: US \$/bbl

FOB South Korea-CFR LAX Jet Fuel

Product: Jet Fuel

Location: FOB South Korea-CFR LAX, South Korea source, delivered to Los Angeles International Airport (LAX) in Los Angeles, California

Timing: 30-55 days forward

Calculation: OPIS FOB Korea outright price + freight rate price in USD \$/bbl. Freight rate reflects a clean petroleum products route from South Korea to the North Pacific West Coast for a medium range (MR) tanker, cargo size 40,000 mt.

Pricing Mechanism: US \$/bbl

Supply Chain Snapshot

Southern California Spot-to-Rack-to-Retail Trend Products

Products

- **Gasoline Basket of Racks**
- **Gasoline Retail Average**
- **Diesel Fuel Basket of Racks**
- **Diesel Fuel Average**

Calculation

- **Gasoline Basket of Racks:** OPIS Los Angeles and Colton racks Gross Contract Average prices for regular CARB RFG Ethanol 10% and includes CAR normalization.
- **Diesel Fuel Basket of Racks:** OPIS Los Angeles and Colton racks Gross Contract Average prices for CARB ultra-low diesel fuel and includes CAR normalization.
- **Gasoline and Diesel Fuel Retail Averages:** Include the most recently reported prices for retail stations in Los Angeles, Orange, San Bernardino, and Riverside counties.

Pricing Mechanism: US \$/gal

US Gulf Coast

OPIS assesses daily Low, High, Last and Average prices and cash differentials for U.S. Gulf Coast Refined Products, as well as some weighted averages. Last prices represent where OPIS assesses spot market close based on market data discovered at the data submission deadline. OPIS Weighted Average prices are calculated from confirmed transactions versus NYMEX, with weight assigned based on the frequency of reported differentials and the volume of trades executed at each differential.

Gasoline cash differentials are assessed versus the NYMEX RBOB futures, and distillates cash differentials are assessed versus the NYMEX ULSD futures.

Data Submissions

U.S. Gulf Coast Refined Products assessments reflect pricing information submitted between 9 a.m. ET to 5 p.m. ET.

Gasoline Products

Pipeline Gasoline Products & Specifications

- **CBOB Reg:** 87 octane after blending with 10% denatured fuel ethanol; reflects A-grade Colonial Pipeline specification.
- **CBOB Pre:** 93 octane after blending with 10% denatured fuel ethanol; reflects D-grade Colonial Pipeline specification.
- **RBOB Reg:** 87 octane after blending with 10% denatured fuel ethanol; reflects F-grade Colonial Pipeline specification.
- **RBOB Pre:** 93 octane after blending with 10% denatured fuel ethanol; reflects H-grade Colonial Pipeline specification.
- **Regular Gasoline:** 87 octane; reflects M-grade Colonial Pipeline specification.
- **Midgrade Gasoline:** 89 octane; not a fungible spot product; reflects a blend ratio of premium gasoline (tradable RVP specification) and its regular-grade counterpart.
- **Premium Gasoline:** 93 octane; reflects V-grade Colonial Pipeline specification.
- **RFG Reg Ethanol:** 87 octane; not a fungible spot product, reflects an implied price using a blend ratio of 90% of the RBOB (tradable RVP specification) price and 10% of the price of spot ethanol.
- **RFG Mid Ethanol:** 89 octane; not a fungible spot product, reflects an implied price using a blend ratio of 90% of the RBOB (tradable RVP specification) price and 10% of the price of spot ethanol.
- **RFG Pre Ethanol:** 93 octane; not a fungible spot product, reflects an implied price using a blend ratio of 90% of the RBOB (tradable RVP specification) price and 10% of the price of spot ethanol.

Waterborne Gasoline and Blending Components Products & Specifications

- **Regular Gasoline**
- **Premium Gasoline**

- **Midgrade Gasoline**
- **MTBE:** Purity 95% minimum, methanol 0.5 Wt% maximum, water 1,500 ppm maximum. Barge quantity.
- **Alkylate:** 92 minimum octane, 5.5psi RVP maximum, 15 ppm sulfur maximum; 300 ppm MTBE maximum. Barge quantity.

Gasoline RVP Schedule: RVP Specifications follow Colonial Pipeline requirements. For the latest schedule, please see the OPIS U.S. Refined Spot Markets RVP Calendar at <https://www.opis.com/about/rvp-calendar/>

Distillate Products

Pipeline Distillate Products & Specifications

- **ULSD:** 15 ppm maximum sulfur; 8 ppm sulfur maximum at origin; minimum cetane 40; contains no renewable diesel from origin to delivery; reflects 62-grade Colonial Pipeline specification.
- **Ultra Low Sulfur Heating Oil:** 15 ppm maximum sulfur; 11 ppm sulfur maximum at origin; minimum cetane 40; reflects 67-grade Colonial Pipeline specification. OPIS U.S. Gulf Coast Ultra Low Sulfur Heating Oil pipeline spot prices are assessed in relationship to OPIS U.S. Gulf Coast ULSD pipeline prices and the OPIS U.S. Renewable Volume Obligation (RVO).
- **High Sulfur Diesel:** 2,000 ppm sulfur maximum; reflects 77-grade Colonial Pipeline specification. OPIS U.S. Gulf Coast High Sulfur Diesel pipeline spot prices are assessed in relationship to OPIS U.S. Gulf Coast ULSD pipeline prices and the OPIS U.S. Renewable Volume Obligation (RVO).
- **Jet Fuel:** 3,000 ppm sulfur maximum; reflects 54-grade Colonial Pipeline specification.
- **Kero 55:** 400 ppm maximum sulfur; reflects 55-grade Colonial Pipeline specification.
- **Ultra Low Sulfur Kero:** 15ppm maximum sulfur; reflects 51-grade Colonial Pipeline specification.

Waterborne Distillate Products

- **ULSD**
- **Ultra Low Sulfur Heating Oil**
- **Low Sulfur Diesel**
- **Low Sulfur Diesel Off Road**
- **High Sulfur Diesel**
- **Jet Fuel**
- **Kero 55**

Location

- **U.S. Gulf Coast Pipeline:** Originate on Colonial Pipeline in Pasadena, Texas, non-Alabama. Colonial Pipeline Texas Origin exclusive trades are excluded from the assessment.
- **U.S. Gulf Coast Waterborne:** FOB U.S. Gulf Coast

Timing

- **U.S. Gulf Coast Pipeline:** Prompt cycle, two forward cycles, and ratable
- **U.S. Gulf Coast Waterborne:** Prompt waterborne aligns with the prompt Colonial Pipeline cycle for loading 10-18 days out. Forward waterborne prices align with every sixth pipeline cycle, representing the final cycle loading for a given Colonial Pipeline month's schedule. OPIS reserves the right to adjust this schedule as needed based on Colonial Pipeline adjustments.

Roll

- **Prompt:** Pipeline timing for gasoline and distillate products follows the Colonial Pipeline schedule. There are 72 cycles each year, lasting approximately five days, and corresponding to approximately six cycles per month. Colonial Pipeline determines the duration of each cycle, which may be shortened, extended or eliminated.
- **Regrades:** OPIS concurrently rolls all specialty grades that typically trade as a "regrade" to base products like CBOB Reg, so that timing references are consistent.
- **Ratable:** Timing reflects a full month of cycles and rolls to the next month when the prompt pipeline timing rolls to the second cycle.

Volume

- **Pipeline products:** Minimum volume 25,000 barrels
- **Waterborne products:** Minimum volume 50,000 barrels

Calculation

- **Waterborne:** Products are assessed based on a premium or discount applied to OPIS U.S. Gulf Coast pipeline gasoline and distillates prompt cycle assessments, reflecting the cost of domestic waterborne barrels.

Pricing mechanism: US cts/gal

US Gulf Coast Line Space

Colonial Pipeline Line Space Products

- **Colonial Pipeline Line 01 Line Space**
- **Colonial Pipeline Line 02 Line Space**

Location: Line space for gasoline and distillate products, loading respectively on Colonial Pipeline Line 01 and Line 02, in Pasadena, Texas. Material offloads before or upon reaching Greensboro, N.C.

Timing: Prompt cycle

Roll: Prompt timing rolls for Line 01 Line Space and Line 02 Line Space follow the Colonial Pipeline schedule for CBOB and ULSD, respectively.

Volume: Minimum 25,000 barrels

Pricing Mechanism: Cash differential US cts/gal versus standard pipeline tariffs and fees.

Supply Chain Snapshot

U.S. Gulf Coast Spot-to-Rack-to-Retail Trend Products

- **Regular Gasoline and CBOB Reg Average**
- **ULSD**
- **Gasoline Basket of Racks**
- **Gasoline Retail Average**
- **Diesel Fuel Basket of Racks**
- **Diesel Fuel Retail Average**

Calculation

- **Regular Gasoline and CBOB Reg Average:** OPIS U.S. Gulf Coast Pipeline prompt cycle CBOB and prompt cycle Regular Gasoline.
- **ULSD:** OPIS U.S. Gulf Coast Pipeline prompt cycle ULSD.
- **Gasoline and Diesel Fuel Basket of Racks:** OPIS Gross Contract Average rack prices for Birmingham, Alabama; Dallas Metro, Texas; Houston, Texas; Little Rock, Arkansas; Meridian, MS; and New Orleans, Louisiana.
- **Gasoline and Diesel Fuel Retail Averages:** Include the most recently reported prices for retail stations in Birmingham, Alabama; Dallas, Texas; Hattiesburg, Mississippi; Houston, Texas; Jackson, Mississippi; Little Rock-North Little Rock, Arkansas; and New Orleans, Louisiana.

Pricing Mechanism: US \$/gal

US Atlantic Coast

OPIS assesses daily Low, High, Last and Average prices and cash differentials for U.S. Atlantic Coast Refined Products. Last prices represent where OPIS assesses spot market close based on market data discovered at the data submission deadline. Gasoline cash differentials are assessed versus the NYMEX RBOB futures, and distillate cash differentials are assessed versus the NYMEX ULSD futures.

Data Submissions

U.S. Atlantic Coast Refined Products assessments reflect pricing information submitted between 8 a.m. ET to 5 p.m. ET.

New York Harbor Barge Refined Products

Gasoline Products & Specifications

- **CBOB Reg:** 87 octane after blending with 10% denatured fuel ethanol
- **CBOB Pre:** 93 octane after blending with 10% denatured fuel ethanol
- **RBOB Reg:** 87 octane after blending with 10% denatured fuel ethanol
- **RBOB Pre:** 93 octane after blending with 10% denatured fuel ethanol
- **RFG Reg Ethanol:** 87 octane; not a fungible spot product, reflects an implied price using a blend ratio of 90% of the RBOB (tradable RVP specification) price and 10% of the price of spot ethanol.
- **RFG Mid Ethanol:** 89 octane; not a fungible spot product, reflects an implied price using a blend ratio of 90% of the RBOB (tradable RVP specification) price and 10% of the price of spot ethanol.

- **RFG Pre Ethanol:** 93 octane; not a fungible spot product, reflects an implied price using a blend ratio of 90% of the RBOB (tradable RVP specification) price and 10% of the price of spot ethanol.

Gasoline RVP Schedule: For the latest schedule, please see the OPIS U.S. Refined Spot Markets RVP Calendar at <https://www.opis.com/about/rvp-calendar/>

Barge Distillate Products & Specifications

- **ULSD:** 15 ppm sulfur maximum
- **Ultra Low Sulfur Heating Oil:** 15 ppm sulfur maximum
- **Jet Fuel:** 3,000 ppm sulfur maximum
- **Ultra Low Sulfur Kero:** 15ppm sulfur maximum

Location: New York Harbor Barge

Timing

- **Prompt:** Generally regarded as barrels loading same-day and up to three full business days out. OPIS will consider barrels loading up to five full days out, when liquidity is thin.
- **Forward:** The forward, or end month, range is based on “any-month timing” for barrels that can be loaded in the same calendar month beyond prompt timing, typically the last three days of a month.
- **Ratable:** The ratable range is based on values that reflect an average of a full month where barrels load throughout the month.

Roll

- **Forward:** In the last few days of the month, OPIS reserves the right to roll coverage forward to the next, more liquid month.
- **Ratable:** Timing rolls to the next month on the first day of the calendar month.

Volume: Minimum volume: 10,000 barrels

Pricing mechanism: US cts/gal

New York Harbor Cargo Refined Products

New York Harbor Cargo refined products are typically assessed in relationship to New York Harbor Barge or Linden refined products.

Cargo Gasoline Products & Specifications

- **RBOB Reg:** 87 octane after blending with 10% denatured fuel ethanol
- **RBOB Pre:** 93 octane after blending with 10% denatured fuel ethanol
- **Regular Gasoline:** 87 octane

Gasoline RVP Schedule: For the latest schedule, please see the OPIS U.S. Refined Spot Markets RVP Calendar at <https://www.opis.com/about/rvp-calendar/>

Cargo Distillate Products & Specifications

- **ULSD:** 15 ppm sulfur maximum
- **Jet Fuel:** 3,000 ppm sulfur maximum

Location: New York Harbor Cargo inside-duty basis

Timing

- **Prompt:** 5-15 days out
- **Forward:** The forward, or end month, range is based on “any-month timing” for barrels that can be loaded in the same calendar month beyond prompt timing, typically the last three days of a month.

Roll: For the Forward timing, in the last few days of the month, OPIS reserves the right to roll coverage forward to the next, more liquid month.

Volume: 225,000 barrels, plus or minus 10% at the seller’s option

Pricing mechanism: US cts/gal

Linden Refined Products

Gasoline Products & Specifications

- **CBOB Reg:** 87 octane after blending with 10% denatured fuel ethanol; reflects A-grade Colonial Pipeline specification.
- **RBOB Reg:** 87 octane after blending with 10% denatured fuel ethanol; reflects F-grade Colonial Pipeline specification.
- **Regular Gasoline:** 87 octane; reflects M-grade Colonial Pipeline specification.

Gasoline RVP Schedule: RVP Specifications follow Colonial Pipeline requirements. For the latest schedule, please see the OPIS U.S. Refined Spot Markets RVP Calendar at <https://www.opis.com/about/rvp-calendar/>

Distillate Products & Specifications

- **ULSD:** 15 ppm maximum sulfur; reflects 62-grade Colonial Pipeline specification.
- **Ultra Low Sulfur Heating Oil:** 15 ppm maximum sulfur; reflects 67-grade Colonial Pipeline specification.
- **Jet Fuel:** 3,000 ppm sulfur maximum; reflects 54-grade Colonial Pipeline specification.

Location: Linden delivery via Colonial Pipeline between Greensboro, N.C., and Linden, N.J.

Timing: Prompt, reflecting the first full Colonial Pipeline shipping cycle before its arrival in Greensboro. Colonial Pipeline deliveries are scheduled according to cycles, of which there are typically six per month, 72 per year, lasting approximately five days.

Roll: Prompt timing rolls in line with Colonial Pipeline's transport schedule and modifications to cycle roll dates are made in line with any changes to the pipeline cycle timings.

Volume: Minimum 25,000 barrels

Pricing mechanism: US cts/gal

Buckeye Pipeline

Gasoline Products & Specifications

- **CBOB Reg:** 87 octane after blending with 10% denatured fuel ethanol
- **CBOB Pre:** 93 octane after blending with 10% denatured fuel ethanol
- **RBOB Reg:** 87 octane after blending with 10% denatured fuel ethanol
- **RBOB Pre:** 93 octane after blending with 10% denatured fuel ethanol

Gasoline RVP Schedule: RVP Specifications are informed by Buckeye Pipeline requirements. For the latest schedule, please see the OPIS U.S. Refined Spot Markets RVP Calendar at <https://www.opis.com/about/rvp-calendar/>

Distillate Products & Specifications

- **ULSD:** 15 ppm sulfur maximum
- **Ultra Low Sulfur Heating Oil:** 15 ppm sulfur maximum
- **Jet Fuel:** 3,000 ppm sulfur maximum

Location: FOB New York Harbor, loading into Buckeye Pipeline at Linden, New Jersey, for destinations in New York or Pennsylvania.

Timing: Prompt, barrels loading same-day and up to three full business days out. OPIS will consider barrels loading up to five full days out during periods of illiquidity.

Volume: Minimum volume: 10,000 barrels

Pricing mechanism: US cts/gal

Laurel Pipeline

Gasoline Products & Specifications

- **CBOB Reg:** 87 octane after blending with 10% denatured fuel ethanol
- **CBOB Pre:** 93 octane after blending with 10% denatured fuel ethanol

Gasoline RVP Schedule: RVP Specifications are informed by Laurel Pipeline requirements. For the latest schedule, please see the OPIS U.S. Refined Spot Markets RVP Calendar at <https://www.opis.com/about/rvp-calendar/>

Distillate Products & Specifications

- **ULSD:** 15 ppm sulfur maximum
- **Ultra Low Sulfur Heating Oil:** 15 ppm sulfur maximum
- **Jet Fuel:** 3,000 ppm sulfur maximum

Location: Laurel Ranges reflect non-Pennsylvania-origin barrels loading FOB Philadelphia into Laurel Pipeline.

Timing: Prompt timing includes barrels loading into Laurel Pipeline up to nine full business days out. When no cycles are scheduled up to nine days out for a given product, the next cycle to schedule for that product will be included in the prompt spot price assessment.

Volume: Minimum volume: 8,000 barrels

Pricing mechanism: US cts/gal

Supply Chain Snapshot

U.S. Northeast Spot-to-Rack-to-Retail Trend Products

- **CBOB Reg**
- **ULSD**
- **Gasoline Basket of Racks**
- **Gasoline Retail Average**
- **Diesel Fuel Basket of Racks**
- **Diesel Fuel Retail Average**

Calculation

- **CBOB Reg:** OPIS New York Harbor barge prompt CBOB.
- **ULSD:** OPIS Linden prompt cycle ULSD.
- **Gasoline and Diesel Fuel Basket of Racks:** OPIS Gross Contract Average rack prices for Albany, New York; Boston, Massachusetts; Burlington, Vermont; New Haven, Connecticut; New York, New York; Newark, New Jersey; Philadelphia, Pennsylvania; and Portland, Maine
- **Gasoline and Diesel Fuel Retail Averages:** Include the most recently reported prices for retail stations in Albany-Schenectady-Troy, New York; Boston, Massachusetts; Burlington, Vermont; New Haven-Meriden, Connecticut; New York, New York; Newark, New Jersey; Philadelphia, Pennsylvania; and Portland, Maine.

Pricing Mechanism: US \$/gal

US Midwest

OPIS assesses daily Low, High, Last and Average prices and cash differentials for U.S. Midwest Refined Products. Last prices represent where OPIS assesses spot market close based on market data discovered at the data submission deadline. Gasoline cash differentials are assessed versus the NYMEX RBOB futures, and distillate cash differentials are assessed versus the NYMEX ULSD futures.

Data Submissions

U.S. Midwest Refined Products assessments reflect pricing information submitted between 9 a.m. ET to 5 p.m. ET.

Group 3 Refined Products

Gasoline Products & Specifications

- **Sub-Octane Reg:** 87 octane after blending with 10% denatured fuel ethanol; reflects V grade ONEOK Pipeline specifications.
- **Midgrade Gasoline:** 89 octane; not a fungible spot product; reflects a blend ratio of premium gasoline (tradable RVP specification) and its regular-grade counterpart.
- **Premium Gasoline:** 91 octane after blending with 10% denatured fuel ethanol; reflects A grade ONEOK Pipeline specifications.

Gasoline RVP Schedule: RVP Specifications follow ONEOK Pipeline requirements. For the latest schedule, please see the OPIS U.S. Refined Spot Markets RVP Calendar at <https://www.opis.com/about/rvp-calendar/>

Distillate Products & Specifications

- **ULSD:** 15 ppm sulfur maximum; reflects X grade ONEOK Pipeline specifications
- **Ultra Low Sulfur No. 1:** 12 ppm sulfur maximum; reflects Y grade ONEOK Pipeline specifications. ULS No. 1 is a seasonal assessment typically running from Oct. 15 through April 1, depending on seasonal refinery production changes and spot liquidity.
- **Jet Fuel:** 3,000 ppm sulfur maximum; reflects Q grade ONEOK Pipeline specifications.

Location: FOB Central Oklahoma locations for shipment on ONEOK Pipeline

Timing

- **Prompt:** Same-day and next-day deals
- **Forward:** The forward range is based on “any-month timing” for barrels that can be lifted in the same calendar month beyond prompt timing, typically the last five days of a month.

Roll: For the Forward timing, in the last few days of the month, OPIS reserves the right to roll coverage forward to the next, more liquid month.

Volume: Minimum volume: 5,000 barrels

Pricing mechanism: US cts/gal

Chicago Comprehensive Refined Products

Gasoline Products

- **CBOB Reg:** 84 octane before blending

- **RBOB Reg:** 84.6 octane before blending
- **RBOB Pre:** 91.4 octane before blending
- **Midgrade Gasoline:** 89 octane; not a fungible spot product; reflects a blend ratio of premium gasoline (tradable RVP specification) and CBOB Reg.
- **Premium Gasoline:** 91-93 octane
- **RFG Reg Ethanol:** 87 octane; not a fungible spot product, reflects an implied price using a blend ratio of 90% of the RBOB (tradable RVP specification) price and 10% of the price of spot ethanol.
- **RFG Pre Ethanol:** 93 octane; not a fungible spot product, reflects an implied price using a blend ratio of 90% of the RBOB (tradable RVP specification) price and 10% of the price of spot ethanol.

Gasoline RVP Schedule: For the latest schedule, please see the OPIS U.S. Refined Spot Markets RVP Calendar at <https://www.opis.com/about/rvp-calendar/>

Distillate Products & Specifications

- **ULSD:** 15 ppm sulfur maximum
- **Ultra Low Sulfur No.1:** 10 ppm sulfur maximum. ULS No. 1 is a seasonal assessment typically running from Oct. 15 through April 1, depending on seasonal refinery production changes and spot liquidity.
- **Jet Fuel:** 3,000 ppm sulfur maximum.

Location: Seller's option, FOB Chicago area delivered via pipelines. Specified pipeline delivery or storage locations in the region such as West Shore, Badger, Wolverine and Buckeye Complex are evaluated for Chicago Comprehensive assessment purposes.

Timing: Prompt cycle, the next three consecutive cycles out, and forward

Roll

- **Prompt cycle and the next three consecutive cycles:** Timing advances on the 5th, 15th, and 25th of each month.
- **Forward:** The last cycle in each month ("Cycle 3") is designated as forward, or "any-timing," except when Cycle 3 is the prompt cycle. In that case, the next calendar month's Cycle 3 will be designated as forward, or "any-timing."

Volume: Minimum volume 10,000 barrels

Pricing mechanism: US cts/gal

Buckeye Complex Refined Products

Gasoline Products & Specifications

- **CBOB Reg:** 84 octane before blending
- **RBOB Reg:** 84.6 octane before blending
- **RBOB Pre:** 91.4 octane before blending
- **Premium Gasoline:** 91-93 octane

Gasoline RVP Schedule: RVP Specifications follow Buckeye Chicago Complex requirements. For the latest schedule, please see the OPIS U.S. Refined Spot Markets RVP Calendar at <https://www.opis.com/about/rvp-calendar/>

Distillate Products & Specifications

- **ULSD:** 15 ppm sulfur maximum
- **Ultra Low Sulfur No.1:** 10 ppm sulfur maximum. ULS No. 1 is a seasonal assessment typically running from Oct. 15 through April 1, depending on seasonal refinery production changes and spot liquidity.
- **Jet Fuel:** 3,000 ppm sulfur maximum.

Location: Buckeye Complex, off Explorer Pipeline or the CITGO East Chicago storage terminal

Timing: Prompt cycle. Buckeye Complex will adhere to the Chicago Comprehensive cycle schedule.

Roll: Prompt cycles advance on the 5th, 15th, and 25th of each month.

Volume: Minimum volume: 10,000 barrels

Pricing mechanism: US cts/gal

Wolverine Pipeline Refined Products

Gasoline Products & Specifications

- **CBOB Reg:** 84 octane before blending
- **Premium Gasoline:** 91-93 octane

Gasoline RVP Schedule: For the latest schedule, please see the OPIS U.S. Refined Spot Markets RVP Calendar at <https://www.opis.com/about/rvp-calendar/>

Distillate Products & Specifications

- **ULSD:** 15 ppm sulfur maximum
- **Ultra Low Sulfur No.1:** 10 ppm sulfur maximum. ULS No. 1 is a seasonal assessment typically running from Oct. 15 through April 1, depending on seasonal refinery production changes and spot liquidity.

Location: Wolverine Pipeline origin.

Timing: Prompt cycle. Buckeye Complex will adhere to the Chicago Comprehensive cycle schedule.

Roll: Prompt cycles advance on the 5th, 15th, and 25th of each month.

Volume: Minimum volume: 10,000 barrels

Pricing mechanism: US cts/gal

West Shore/Badger Pipeline Refined Products

Gasoline Products & Specifications

- **CBOB Reg:** 84 octane before blending
- **RBOB Reg:** 84.6 octane before blending
- **RBOB Pre:** 91.4 octane before blending
- **Premium Gasoline:** 91-93 octane

Gasoline RVP Schedule: For the latest schedule, please see the OPIS U.S. Refined Spot Markets RVP Calendar at <https://www.opis.com/about/rvp-calendar/>

Distillate Products & Specifications

- **ULSD:** 15 ppm sulfur maximum
- **Ultra Low Sulfur No.1:** 10 ppm sulfur maximum. ULS No. 1 is a seasonal assessment typically running from Oct. 15 through April 1, depending on seasonal refinery production changes and spot liquidity.
- **Jet Fuel:** 3,000 ppm sulfur maximum.

Location: Origin along West Shore Pipeline, Badger Pipeline and Des Plaines storage terminal.

Timing: Prompt cycle. West Shore/Badger Pipeline will adhere to the Chicago Comprehensive cycle schedule.

Roll: Prompt cycles advance on the 5th, 15th, and 25th of each month.

Volume: Minimum volume: 10,000 barrels

Pricing mechanism: US cts/gal

US Delivered Spot Jet Fuel

OPIS provides calculated delivered spot jet fuel values daily.

Locations

Akron/Canton, OH	Fargo, ND	Philadelphia, PA
Albany, NY	Ft. Lauderdale, FL	Phoenix, AZ
Amarillo, TX	Green Bay, WI	Pittsburgh, PA
Anchorage, AK	Greensboro, NC	Portland, ME
Atlanta, GA	Hartford/Rocky Hill, CT	Portland, OR
Austin, TX	Honolulu, HI	Pt. Everglades, FL
Baltimore, MD	Hooker's Pt., FL	Raleigh/Apex, NC
Bangor, ME	Houston, TX	Rapid City, SD
Baton Rouge, LA	Indianapolis, IN	Richmond, VA
Birmingham, AL	JFK, NY	Roanoke, VA
Boise, ID	Kansas City, KS	Rochester, NY
Bond-Miami, FL	Las Vegas, NV	Salina, KS
Boston, MA	Levelland, TX	Salt Lake City, UT
Brownsville, TX	Lexington, KY	San Antonio, TX
Buffalo, NY	Linden, NJ	San Diego, CA
Charleston, SC	Little Rock, AR	San Francisco, CA
Charlotte, NC	Los Angeles, CA	Savannah, GA
Chattanooga, TN	Louisville, KY	Seattle, WA
Chicago, IL	Lubbock, TX	Shreveport, LA
Cincinnati, OH	Memphis, TN	Sioux Falls, SD
Cleveland, OH	Miami, FL	Sparks/Reno, NV
Colorado Springs, CO	Milwaukee, WI	Spokane, WA
Columbia, MO	Minneapolis, MN	St. Louis, MO
Columbus, OH	Mobile, AL	Syracuse, NY
Dallas Metro, TX	Nashville, TN	Tampa, FL
Dallas/Ft. Worth, TX	New Orleans, LA	Topeka, KS
Dayton, OH	Newark, NJ	Tucson, AZ
DC/Dulles, VA	Newburgh, NY	Tulsa, OK
Denver, CO	Norfolk, VA	U.S. Gulf Coast, TX
Des Moines, IA	Oklahoma City, OK	Wichita, KS
Detroit, MI	Omaha, NE	Wilmington, NC
El Paso, TX	Orlando, FL	

Calculation: Average of the corresponding OPIS spot jet fuel price for the previous five business days, not including the current day, plus a logistics fee, which is reviewed annually.

Pricing Mechanism: US cts/gal