



RBN U.S. Propane Billboard

# U.S. Propane Market Update & Outlook

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## U.S. PROPANE SUPPLY &amp; DEMAND

| Table A:                 | MM gal / month |              |              |              |              |              |              | M bbl / day  |              |              |              |              |              |              |
|--------------------------|----------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
|                          | EIA MONTHLY    |              | ESTIMATED    |              | FORECAST     |              |              | EIA MONTHLY  |              | ESTIMATED    |              | FORECAST     |              |              |
|                          | Feb-23         | Mar-23       | Apr-23       | May-23       | Jun-23       | Jul-23       | Aug-23       | Feb-23       | Mar-23       | Apr-23       | May-23       | Jun-23       | Jul-23       | Aug-23       |
| Production               | 2,518          | 2,876        | 2,808        | 2,928        | 2,838        | 2,950        | 2,965        | 2,141        | 2,209        | 2,229        | 2,249        | 2,252        | 2,266        | 2,277        |
| Gas Plants               | 2,200          | 2,513        | 2,446        | 2,548        | 2,477        | 2,572        | 2,585        | 1,871        | 1,930        | 1,942        | 1,957        | 1,966        | 1,976        | 1,986        |
| Refinery                 | 318            | 363          | 362          | 380          | 360          | 378          | 380          | 270          | 279          | 287          | 292          | 286          | 290          | 292          |
| Imports                  | 206            | 180          | 98           | 79           | 73           | 78           | 79           | 175          | 138          | 78           | 61           | 58           | 60           | 61           |
| <b>TOTAL SUPPLY</b>      | <b>2,724</b>   | <b>3,056</b> | <b>2,906</b> | <b>3,007</b> | <b>2,911</b> | <b>3,028</b> | <b>3,045</b> | <b>2,316</b> | <b>2,347</b> | <b>2,306</b> | <b>2,309</b> | <b>2,310</b> | <b>2,326</b> | <b>2,338</b> |
| Demand (Prod. Supplied)  | 1,232          | 1,048        | 814          | 532          | 655          | 783          | 788          | 1,048        | 805          | 646          | 408          | 520          | 602          | 605          |
| Exports                  | 1,825          | 2,208        | 2,044        | 1,986        | 1,937        | 1,993        | 1,990        | 1,552        | 1,696        | 1,622        | 1,525        | 1,537        | 1,531        | 1,529        |
| Stock Change             | (336)          | (201)        | 48           | 488          | 319          | 252          | 266          | (286)        | (154)        | 38           | 375          | 253          | 194          | 205          |
| <b>TOTAL DISPOSITION</b> | <b>2,721</b>   | <b>3,056</b> | <b>2,906</b> | <b>3,006</b> | <b>2,911</b> | <b>3,028</b> | <b>3,045</b> | <b>2,314</b> | <b>2,347</b> | <b>2,306</b> | <b>2,309</b> | <b>2,310</b> | <b>2,326</b> | <b>2,338</b> |
| <b>TOTAL INVENTORY*</b>  | <b>2.5</b>     | <b>2.3</b>   | <b>2.4</b>   | <b>2.9</b>   | <b>3.2</b>   | <b>3.5</b>   | <b>3.7</b>   | <b>60.6</b>  | <b>55.8</b>  | <b>57.0</b>  | <b>68.6</b>  | <b>76.2</b>  | <b>82.2</b>  | <b>88.5</b>  |

\* Inventories are shown in billion gallons and million barrels respectively.

## MONTHLY HIGHLIGHTS

- U.S. propane production growth finally got back on track, according to the latest EIA monthly data. Propane gas plant production for March, as reported by the EIA, was 1,930 Mb/d, an increase of 59 Mb/d from February and only 30 Mb/d below September's all-time high. We expect production to grow strongly for the rest of 2023.
- The propane market was down for the third month in a row as prices declined by more than 20%, pressured by high inventory levels. Propane prices were also weaker relative to crude oil, with the ratio to WTI falling to 34% as of May 31, which is the lowest ratio for the month since May 2015.
- U.S. propane stocks soared by almost 12 MMbbl during May, well above our forecast and industry expectations. The build was the largest increase in stocks for the month in over 10 years. (See the Monthly Market Spotlight section of this report, where we analyze the surge in May inventories.)
- Lower propane exports were the main factor driving inventories higher during the month. Total U.S. exports for May were 1,525 Mb/d, which is 97 Mb/d below April's rate and 57 Mb/d less than the 2023 year-to-date average.

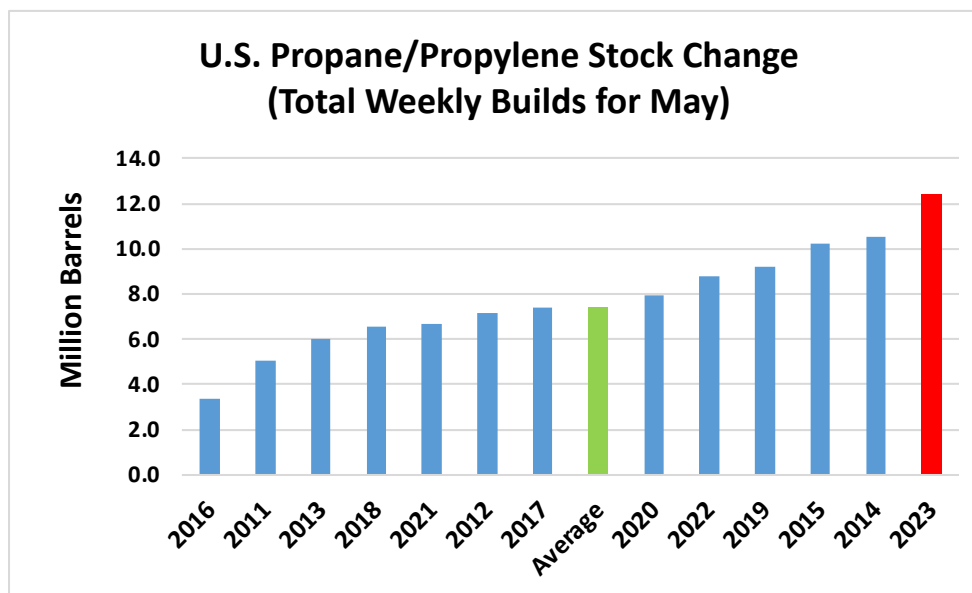
## MARKET OVERVIEW

Strong inventory builds and weaker export demand were the main propane market trends in May. On a fundamental basis, U.S. propane supplies remain robust with total stocks well above last year and the 5-year average. The bearish trend in propane prices continued during the month, primarily due to high inventory levels, with Mont Belvieu propane plunging below 55 c/gal in late May, the lowest since November 2020. And we finally got some good news on propane production growth from the EIA. We continue to expect strong production growth in the second half of the year, with a significant amount of new gas processing plant capacity scheduled to come online in the Permian Basin.

## MONTHLY MARKET SPOTLIGHT

### Propane Inventories Soar in May; Largest Build for The Month in Over 10 Years

U.S. propane inventories took off like a rocket in May. As shown on the chart below, total U.S. propane/propylene inventories increased by about 12 million barrels for the 4-week period in May (red bar), which is ~4 million barrels more than the average increase for the period (green bar). The build was the largest on record for the month, according to available historical EIA data. And the culprit, as you might expect, is lower exports. Total U.S. exports in May were down 97 Mb/d from April and 57 Mb/d below the 2023 year-to-date average. However, exports during the month were still 160 Mb/d higher than in May 2022 while gas plant production was only up about 110 Mb/d year-on-year. So why was the build this year so much larger than last May? Part of the increase in inventories is likely due to lower domestic demand. But we believe the main reason is higher production and that the EIA weekly data is understating gas plant supply.

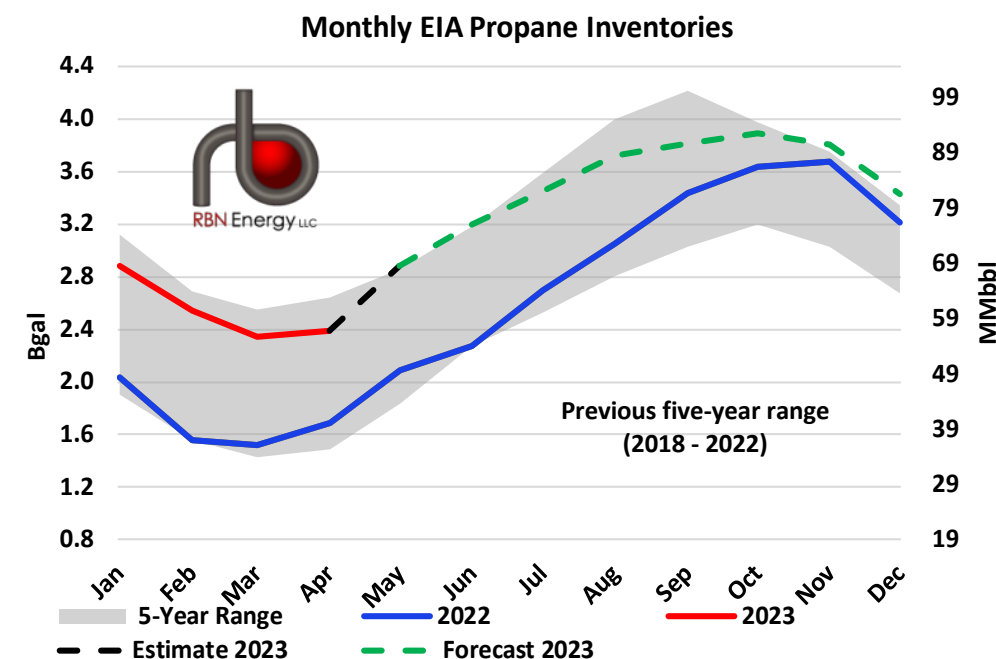


Source: EIA, RBN Estimates

## U.S. PROPANE INVENTORIES

| Table B: MM gal          |              |              |              |              |              |              | M bbl         |               |                |               |               |               |
|--------------------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|---------------|----------------|---------------|---------------|---------------|
|                          | MONTHLY EIA  |              |              | ESTIMATED    |              | FORECAST     | MONTHLY EIA   |               |                | ESTIMATED     |               | FORECAST      |
|                          | Feb-23       | Mar-23       | M/M          | Apr-23       | May-23       |              | Feb-23        | Mar-23        | M/M            | Apr-23        | May-23        |               |
| PADD 1 (East Coast)      | 237          | 208          | (29)         | 208          | 242          | 272          | 5,648         | 4,953         | (695)          | 4,946         | 5,760         | 6,470         |
| PADD 2 (Midwest)         | 619          | 502          | (117)        | 534          | 694          | 854          | 14,748        | 11,963        | (2,785)        | 12,709        | 16,524        | 20,328        |
| PADD 3 (Gulf Coast)      | 1,574        | 1,539        | (35)         | 1,558        | 1,834        | 1,954        | 37,476        | 36,654        | (822)          | 37,095        | 43,676        | 46,521        |
| PADD 4 (Rocky Mountains) | 81           | 77           | (4)          | 71           | 78           | 84           | 1,927         | 1,826         | (101)          | 1,682         | 1,857         | 2,007         |
| PADD 5 (West Coast)      | 33           | 17           | (16)         | 22           | 32           | 35           | 789           | 416           | (373)          | 530           | 771           | 845           |
| <b>TOTAL PROPANE</b>     | <b>2,545</b> | <b>2,344</b> | <b>(201)</b> | <b>2,392</b> | <b>2,881</b> | <b>3,199</b> | <b>60,588</b> | <b>55,812</b> | <b>(4,776)</b> | <b>56,961</b> | <b>68,589</b> | <b>76,172</b> |
| Propylene                | 35           | 48           | 13           | 48           | 56           | 60           | 845           | 1,151         | 306            | 1,151         | 1,322         | 1,434         |
| <b>TOTAL INVENTORIES</b> | <b>2,580</b> | <b>2,392</b> | <b>(188)</b> | <b>2,441</b> | <b>2,936</b> | <b>3,259</b> | <b>61,433</b> | <b>56,963</b> | <b>(4,470)</b> | <b>58,112</b> | <b>69,910</b> | <b>77,606</b> |

Figure 1.1



Source: EIA

## ANALYSIS &amp; INSIGHTS

U.S. propane inventories built by 11.6 MMbbl in the second month of injection season, which was well above our projections and the 8.1 MMbbl 5-year average increase for the month, bringing ending stocks for May to 68.6 MMbbl (2.8 Bgal), which is 17.4 MMbbl, or 43%, above last year and 22% higher than the 5-year average. PADD 3 had a strong build of 6.6 MMbbl for the month, which was well above the 3.1 MMbbl average increase for the period. Gulf Coast inventories remain elevated and are 9.8 MMbbl, or 32%, above the 5-year average. PADD 2 inventories rose by 3.8 MMbbl, which was higher than the 3.3 MMbbl average gain for the month. Midwest stocks are 4.3 MMbbl above last year and 2.7 MMbbl higher than the 5-year average. PADD 1 inventories grew by 0.8 MMbbl, which was below the 5-year average build of 1.2 MMbbl. PADD 4 stocks rose by 175 Mbbl to 1.9 MMbbl, which is 331 Mbbl below last year but 37 Mbbl above the 5-year average. PADD 5 inventories increased by 241 Mbbl to 771 Mbbl, which is only 3 Mbbl more than last year (5-year minimum).

## INVENTORY OUTLOOK

U.S. propane inventories in June are projected to build by 7.6 MMbbl, which is in line with the 5-year average gain. This would bring total stocks to 76.2 MMbbl (3.2 Bgal), which is 22.1 MMbbl more than last year and 13.2 MMbbl above the 5-year average.

## PROPANE MARKET UPDATE

### PROPANE PRICES CONTINUE TO DECLINE

West Texas Intermediate (WTI) prices remained under pressure during May, generally trading around \$70/bbl as economic worries and demand concerns weighed on market sentiment. WTI closed at \$68.09/bbl on May 31, down \$7.57/bbl, or 10%, from May 1.

U.S. propane prices were weaker than crude, falling by 22% during the month. OPIS non-LST (Enterprise, aka non-TET) propane averaged 64.1 c/gal in May, settling at 54.9 c/gal on May 31, down 15 c/gal from the beginning of the month. OPIS LST (Energy Transfer, aka TET) propane prices averaged 65.1 c/gal for the month, closing at 56.1 c/gal on May 31, falling 14.1 c/gal from the beginning of the month. The non-TET vs. TET price spread increased by 0.9 c/gal during the month, with non-TET trading at a discount of 1.2 c/gal on May 31. Conway OPIS propane averaged 63.9 c/gal during the month, which represented a 0.2 c/gal discount to the average non-LST price.

The benchmark propane-to-WTI Cushing ratio settled at 34% as of June 2, down 5 percentage points from May 1. The current forward curves project the propane-to-WTI ratio to average around 35% through September, which is 7 percentage points lower than implied by the forward curves from last month. As shown in Figure 1.3, the forward curve for June (red line) shifted down sharply, falling by about 10 c/gal from the forward curve from May (yellow line).

Figure 1.2

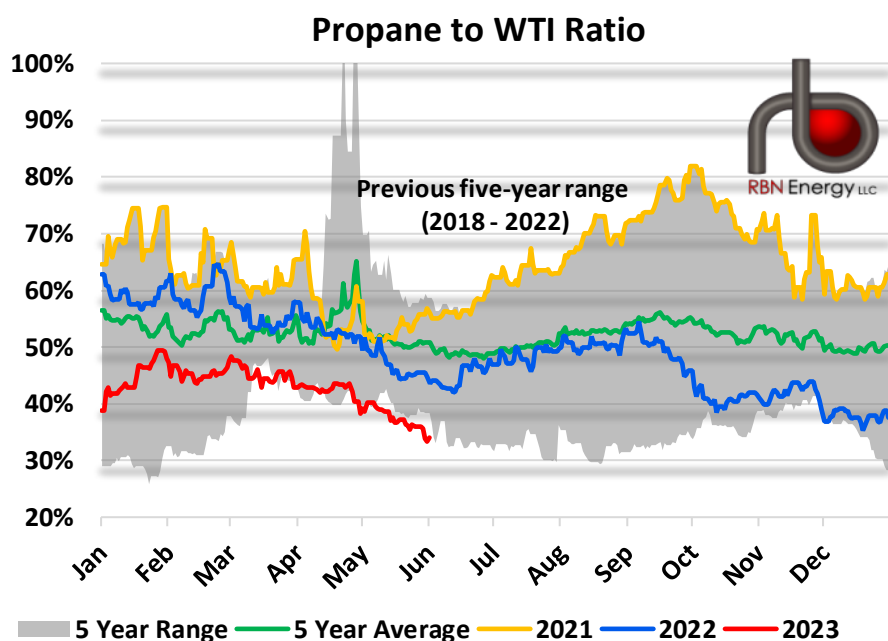
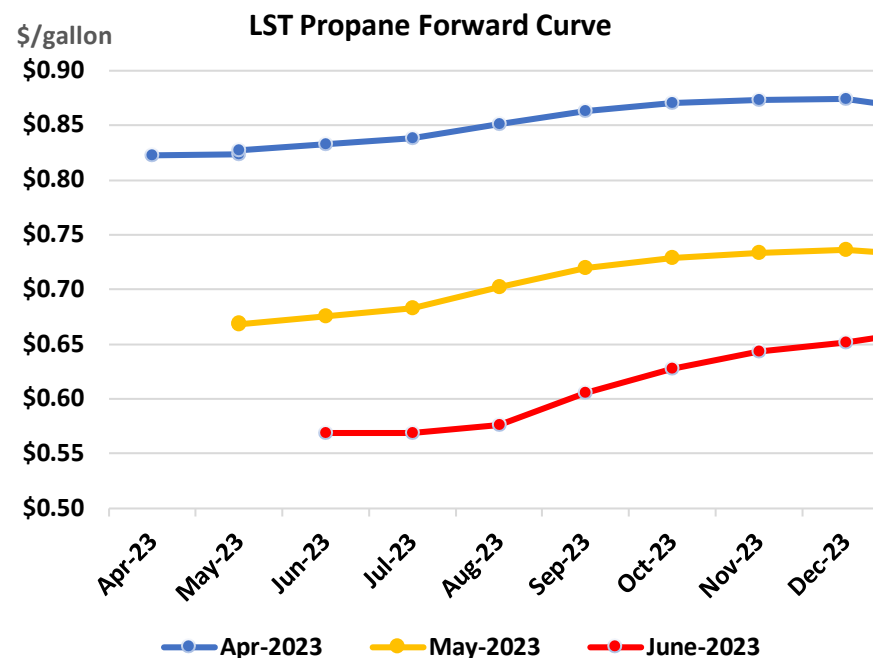


Figure 1.3



## CONWAY VS. MONT BELVIEU PROPANE PRICES

Figure 2.5

### CONWAY DISCOUNT TO BELVIEU NARROWS

The Conway spot propane (OPIS) average discount to Mont Belvieu narrowed to 0.1 c/gal during May, compared to a 1.5 c/gal discount in April and a 4.9 c/gal discount in March. In May 2022, Conway was at an average discount of 1.9 c/gal while in 2018 it was at a discount of 17.8 c/gal. The 5-year average Conway discount for May is 5.3 c/gal. As of June 2, the Conway spot propane (OPIS) discount to Mont Belvieu had widened slightly to 0.5 c/gal.

### CONWAY PROPANE SPREAD — FORWARD CURVE ANALYSIS

Figure 2.6 shows the propane forward price curves for Conway (blue line) and Mont Belvieu (red line) on the left-hand axis. The gray area is the differential on the right axis. The Mont Belvieu-Conway price spread is a good indicator whether the market is incenting barrels to flow from PADD 2 to PADD 3 or keep barrels in the Midwest. The current forward curves expect Belvieu to trade at a 0.8 c/gal premium to Conway in June, then gradually narrow through the summer months before flipping to a small discount in October.

For 2023, the forward curves project that Gulf Coast propane prices will trade higher than Conway for most of the year, with Mont Belvieu averaging 0.7 c/gal over Conway compared to a 0.8 c/gal premium last year.

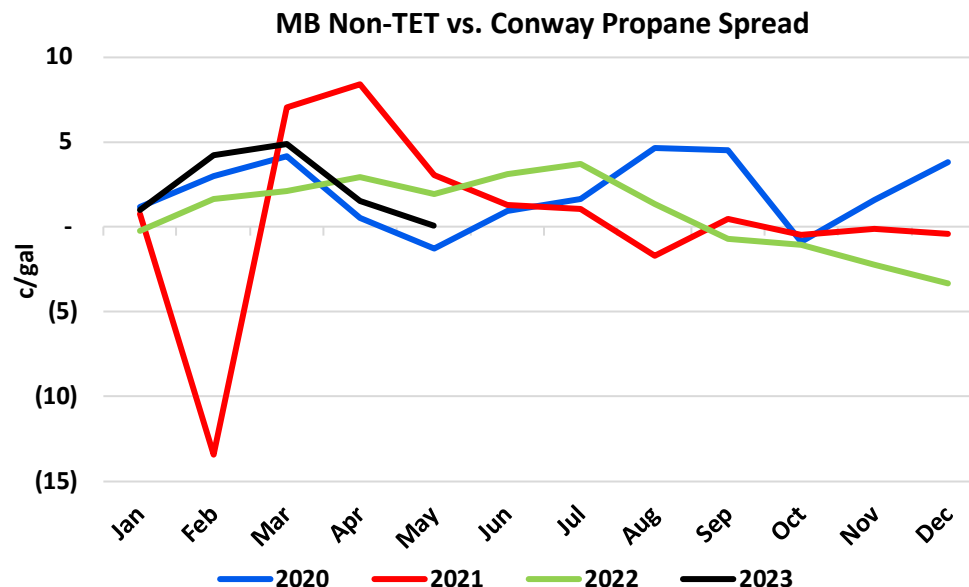
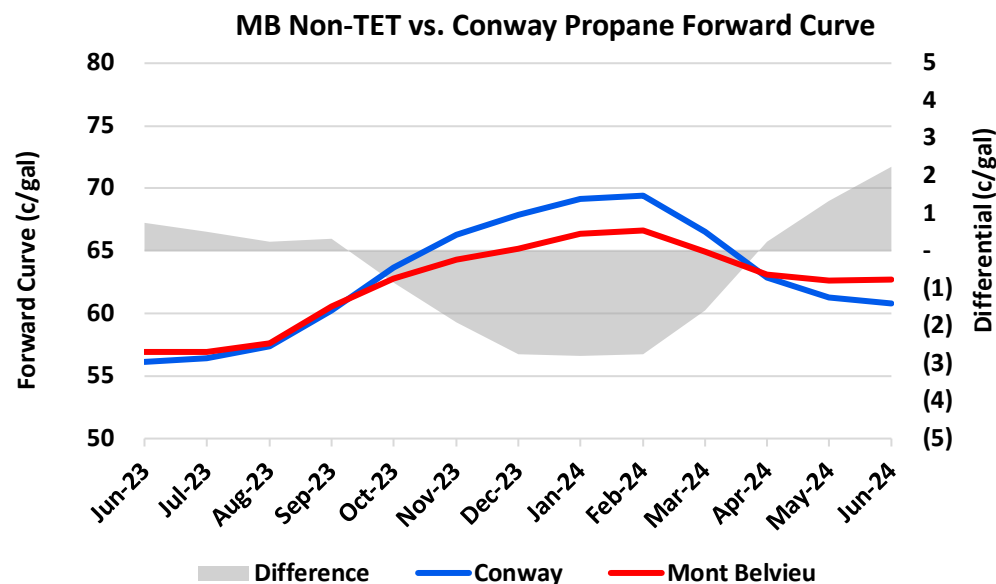


Figure 2.6



## U.S. PROPANE DEMAND

| Table C:               | MM gal / month |              |              |              |            |            | M bbl / day  |              |              |            |            |            |
|------------------------|----------------|--------------|--------------|--------------|------------|------------|--------------|--------------|--------------|------------|------------|------------|
|                        | MONTHLY        |              |              | ESTIMATED    |            | FORECAST   | MONTHLY      |              |              | ESTIMATED  |            | FORECAST   |
|                        | Feb-23         | Mar-23       | M/M          | Apr-23       | May-23     |            | Feb-23       | Mar-23       | M/M          | Apr-23     | May-23     |            |
| ResCom                 | 703            | 714          | 10           | 560          | 454        | 320        | 598          | 548          | (50)         | 444        | 349        | 254        |
| Crop Drying            | 57             | 40           | (17)         | 40           | 40         | 40         | 48           | 30           | (18)         | 31         | 30         | 31         |
| Industrial             | 100            | 96           | (5)          | 91           | 93         | 87         | 85           | 73           | (12)         | 72         | 71         | 69         |
| Petrochemicals         | 218            | 229          | 11           | 205          | 212        | 218        | 185          | 176          | (10)         | 163        | 163        | 173        |
| PDH                    | 71             | 78           | 8            | 88           | 91         | 113        | 60           | 60           | -            | 70         | 70         | 90         |
| Balancing              | 84             | (108)        | (191)        | (170)        | (358)      | (374)      | 71           | (83)         | (154)        | (135)      | (275)      | (297)      |
| <b>TOTAL PROPANE</b>   | <b>1,232</b>   | <b>1,048</b> | <b>(184)</b> | <b>814</b>   | <b>532</b> | <b>403</b> | <b>1,048</b> | <b>805</b>   | <b>(243)</b> | <b>646</b> | <b>408</b> | <b>320</b> |
| Propylene              | 288            | 328          | 40           | 330          | 344        | 332        | 245          | 252          | 7            | 262        | 264        | 264        |
| <b>TOTAL DEMAND **</b> | <b>1,521</b>   | <b>1,376</b> | <b>(144)</b> | <b>1,144</b> | <b>875</b> | <b>735</b> | <b>1,293</b> | <b>1,057</b> | <b>(236)</b> | <b>908</b> | <b>672</b> | <b>584</b> |
| Weekly***              | 1,630          | 1,399        | (231)        | 1,142        | 839        |            | 1,386        | 1,075        | (311)        | 906        | 644        |            |
| Variance               | 109            | 23           | (86)         | (2)          | (37)       |            | 93           | 18           | (75)         | (1)        | (28)       |            |

\* EIA reports purity propane product supplied in monthly data, while weekly data includes propylene.

\*\* Total Demand\*\* is the equivalent of product supplied as reported by the EIA.

\*\*\* Monthly product supplied from EIA through March, weekly through the week of May 26, 2023.

## RESIDENTIAL &amp; COMMERCIAL

Figure 3.1 shows our forecast for Residential & Commercial (“ResCom”) propane demand. ResCom demand was seasonally lower in May at 349 Mb/d, down 95 Mb/d from April. ResCom demand for June is expected to decline again to 254 Mb/d, a decrease 95 Mb/d from May.

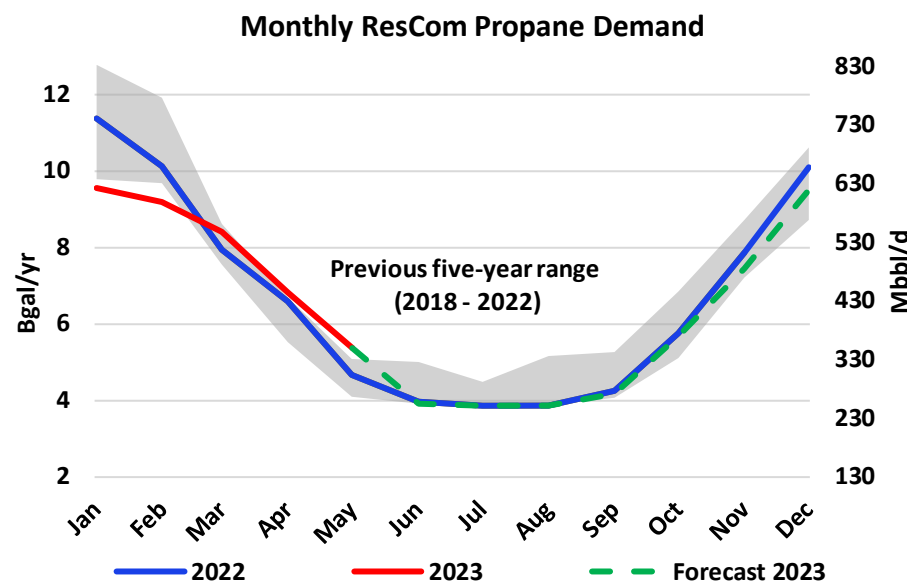
## AGRICULTURAL (CROP DRYING) DEMAND OUTLOOK

Crop drying is expected to be relatively flat around 30 Mb/d (40 MMgal/m) through July. We should see crop-drying demand start to pick up in August and peak in October-November, especially in the Midwest, where about 90% of the U.S. corn crop is grown.

## PETROCHEMICAL DEMAND REMAINS WEAK

Steam cracker demand for propane remained weak in May at 163 Mb/d, mainly due to spring maintenance turnarounds and poor margins. We expect cracker demand for propane to increase modestly as margins have improved with the drop in propane prices. PDH demand was unchanged in May at 70 Mb/d as margins remain under pressure due to weak propylene prices. PDH demand is expected to ramp up in the second half of the year with the startup of Enterprise’s new PDH 2 plant in Q2 (30 Mb/d propane).

Figure 3.1



## U.S. PROPANE EXPORTS

| Table D: U.S. Propane Exports Monthly and Weekly* |              |              |            |              |              |              |
|---|--------------|--------------|------------|--------------|--------------|--------------|
| (Mbbbl/d)   | MONTHLY EIA  |              |            | ESTIMATED    |              | FORECAST     |
|   | Feb-23       | Mar-23       | M/M        | Apr-23       | May-23       | Jun-23       |
| Gulf Coast  | 1,409        | 1,510        | 101        | 1,411        | 1,306        | 1,325        |
| East Coast  | 107          | 136          | 29         | 168          | 182          | 181          |
| West Coast  | 33           | 45           | 12         | 38           | 30           | 26           |
| Other   | 3            | 5            | 2          | 5            | 7            | 6            |
| <b>TOTAL EXPORTS</b>                              | <b>1,552</b> | <b>1,696</b> | <b>144</b> | <b>1,622</b> | <b>1,525</b> | <b>1,537</b> |
| Weekly  | 1,609        | 1,611        | 2          | 1,559        | 1,475        |              |
| Variance  | 57           | (85)         | (142)      | (64)         | (50)         |              |

\*Monthly data from EIA through March, weekly through the week of May 26, 2023.  
See [RBN's NGL Voyager Report](#) for additional details on propane exports.

## EAST COAST EXPORTS

East Coast propane exports from Marcus Hook in Pennsylvania were strong at 182 Mb/d in May, up 14 Mb/d from April. PADD 1 exports are expected to remain robust in June at 181 Mb/d, which is 4 Mb/d higher than June 2022. East Coast exports (green bars in Figure 4.1) are forecast to grow at a healthy

rate in 2023, averaging 150 Mb/d, up 16 Mb/d from 2022. No propane cargoes were imported into the Newington, NH, or Providence, RI, terminals in May.

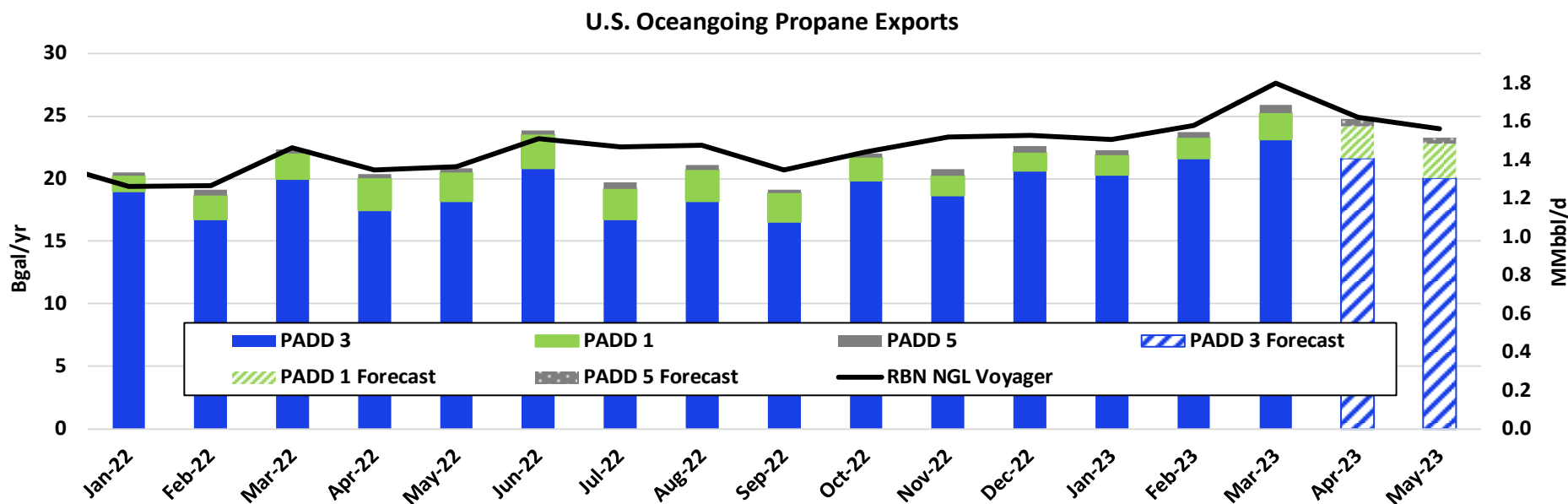
## GULF COAST EXPORTS

Gulf Coast propane exports were weaker in May at 1,306 Mb/d, falling 105 Mb/d from April but 118 Mb/d more than May 2022. For June, we expect PADD 3 exports to increase modestly to 1,325 Mb/d. Gulf Coast exports (blue bars in Figure 4.1) are forecast to grow at a healthy clip in 2023, averaging 1,360 Mb/d, up 149 Mb/d, or 12%, from 2022.

## WEST COAST EXPORTS

On the West Coast, propane exports were down 8 Mb/d from the prior month to 30 Mb/d. PADD 5 exports are projected at 26 Mb/d for June and average 29 Mb/d for 2023, up 2 Mb/d from last year. All West Coast exports are destined for Asia (via the Ferndale, WA, terminal) or Mexico (railcars/trucks).

Figure 4.1



## INTERNATIONAL PROPANE

Figure 4.2

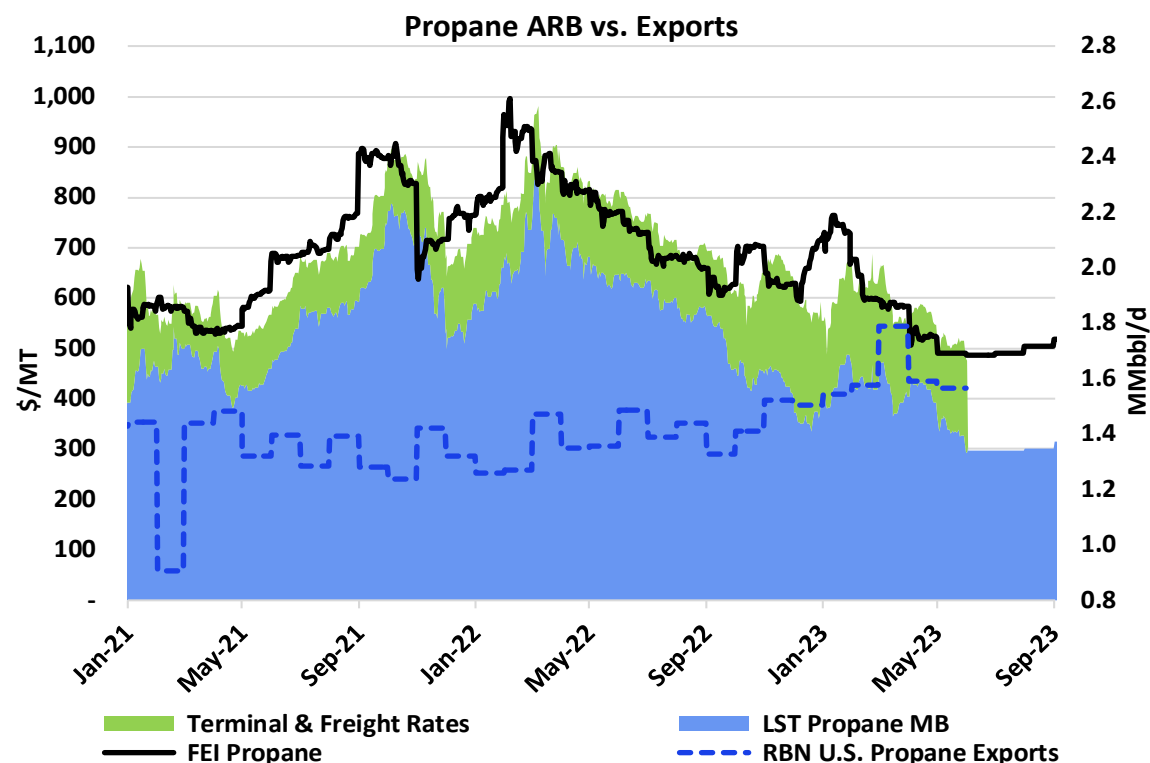
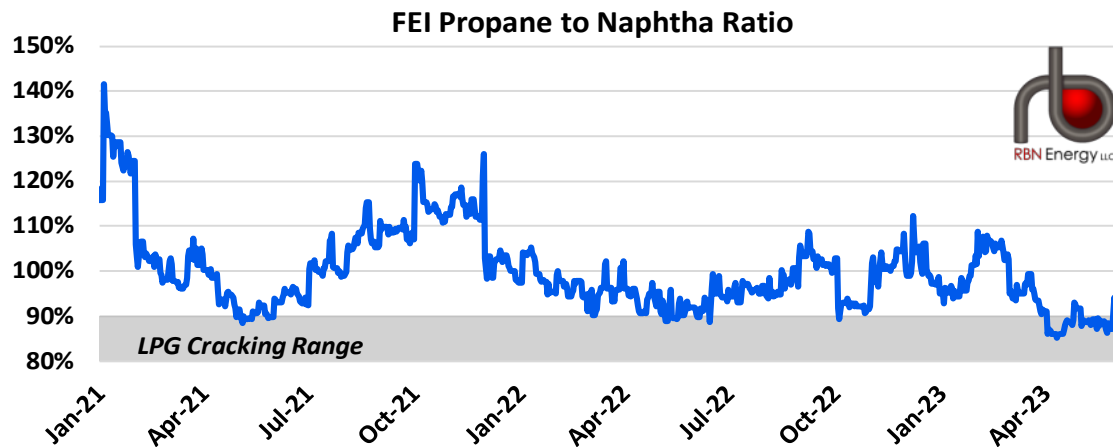


Figure 4.3



## U.S.-ASIA EXPORT ARB OPEN

Saudi Aramco slashed its LPG contract prices (CP) for June amid ample supplies from the U.S. and Middle East. Saudi Aramco reduced the June CP for propane to \$450/MT (86.4 c/gal), down \$105/MT (20.1 c/gal) from the May CP. The Saudi CP for propane has been cut by 43%, or \$340/MT (65.3 c/gal), since February 2023 and was last lower in November 2020.

VLGC freight rates moved steadily higher in May, supported by robust export demand. Spot VLGC freight rates from the U.S. Gulf Coast to Chiba, Japan, (via the Panama Canal) increased by \$27.5/MT to \$156.5/MT as of May 31, which is 21.3% higher than the rate on May 2. Congestion at the Panama Canal remained subdued during the month, with wait times of only two days northbound and two days southbound as of May 31.

Figure 4.2 compares the Asian arb to U.S. propane exports. The arb is open (economic) when the forward month of FEI propane (black line) is higher than the sum of the terminal and freight rates (green area) and the price of Lone Star (LST) propane at Mont Belvieu (blue area). Over the last month, the LST propane price at Mont Belvieu declined by \$74/MT to close at \$293/MT, or 56.2 c/gal, on June 1, while the July FEI propane forward curve fell by \$31/MT, which resulted in a wider spread between U.S. and Asian prices. Thus, the arb for June-July increased to \$193/MT, or 37 c/gal, as of June 1. Taking into consideration terminal fees and freight costs, the arb for June-July was open (negative, thus economic) at (\$9.8/MT), or (1.9 c/gal).

Figure 4.3 shows the ratio of the Asian FEI propane price to naphtha in the same region. On June 1, the ratio sat at 86%, which implies that Asia crackers will tend to favor propane feed over naphtha.

## U.S. PROPANE PRODUCTION

Figure 5.1

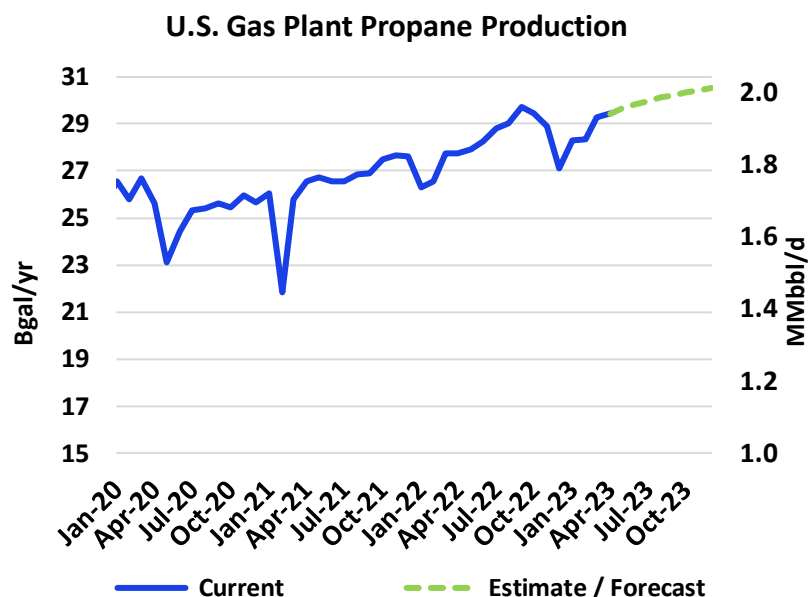
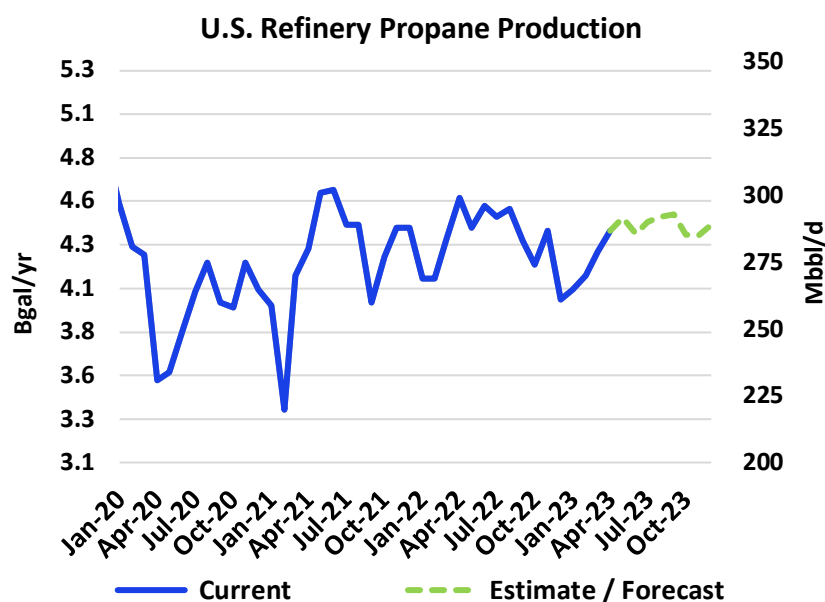


Figure 5.2



| Table E: U.S. Propane Production Monthly and Weekly* |              |              |           |              |              |              |
|--|--------------|--------------|-----------|--------------|--------------|--------------|
| (Mbbbl/d)  | MONTHLY EIA  |              |           | ESTIMATED    |              | FORECAST     |
|  | Feb-23       | Mar-23       | M/M       | Apr-23       | May-23       | Jun-23       |
| Gas Plant  | 1,871        | 1,930        | 59        | 1,942        | 1,957        | 1,966        |
| Refinery   | 270          | 279          | 9         | 287          | 292          | 286          |
| <b>TOTAL PROPANE</b>                                 | <b>2,141</b> | <b>2,209</b> | <b>68</b> | <b>2,229</b> | <b>2,249</b> | <b>2,252</b> |
| Propylene  | 225          | 248          | 23        | 244          | 248          | 249          |
| <b>TOTAL PRODUCTION</b>                              | <b>2,366</b> | <b>2,457</b> | <b>91</b> | <b>2,473</b> | <b>2,497</b> | <b>2,501</b> |
| Weekly**   | 2,384        | 2,407        | 23        | 2,462        | 2,483        |              |
| Variance   | 18           | (50)         | (68)      | (10)         | (14)         |              |

\* EIA reports purity propane production separately in monthly data, while weekly data includes propylene.

\*\* Monthly production from EIA through March, weekly through the week of May 26, 2023.

## GAS PLANT PRODUCTION INCREASES SHARPLY

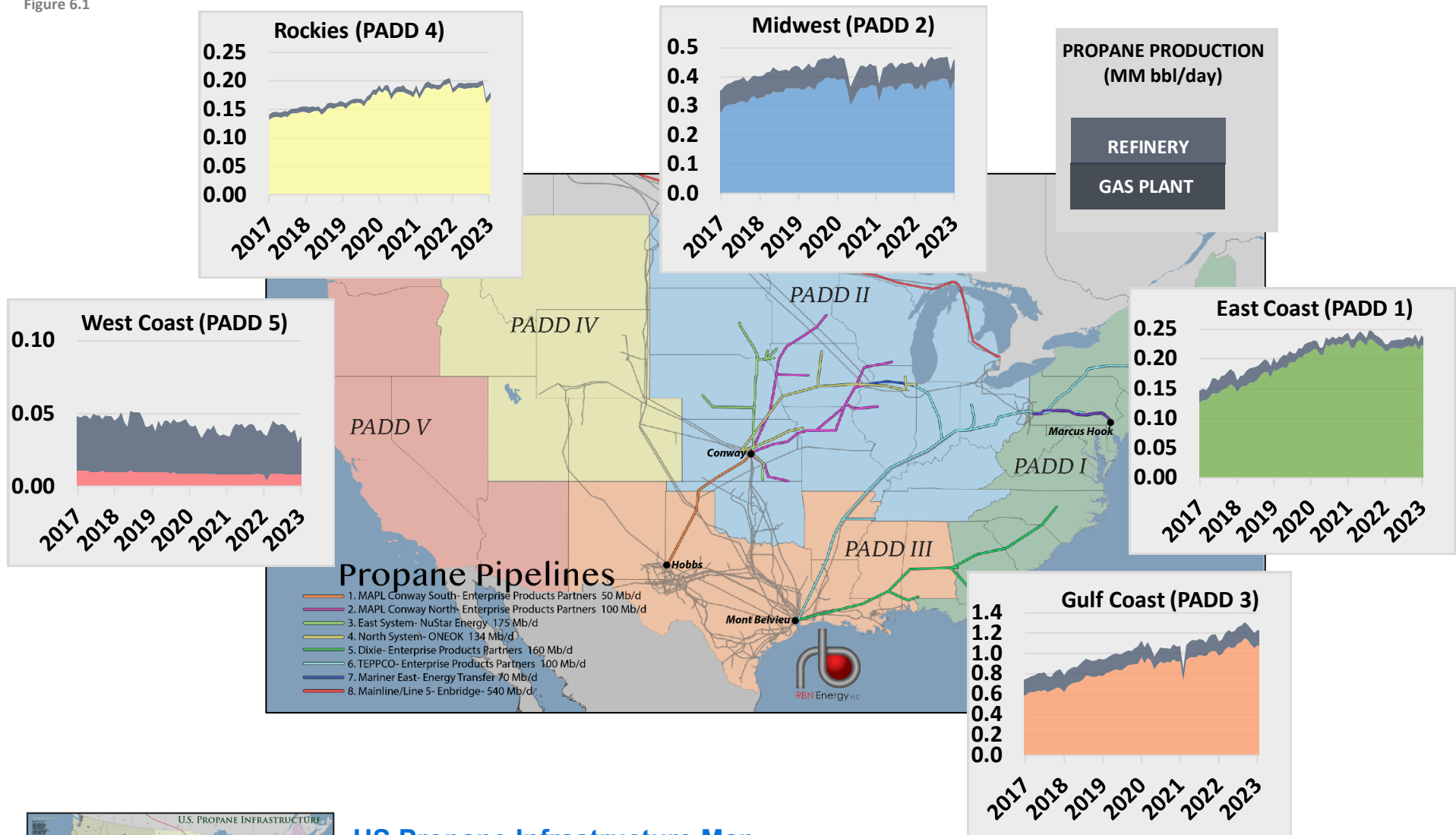
Propane gas plant production for March, as reported in the EIA Petroleum Supply Monthly issued May 31, came in strong, increasing 59 Mb/d from February. Total U.S. propane production was 1,930 Mb/d, up 100 Mb/d from March 2022 and only 30 Mb/d below September's record rate. PADD 3 production was stronger at 1,126 Mb/d, up 55 Mb/d from February and just 23 Mb/d below September's record rate. We estimate May gas plant production at 1,957 Mb/d, an increase of 15 Mb/d from April. Our forecast model projects gas plant production will grow in June to 1,966 Mb/d, which is 6 Mb/d above September's record high. For 2023, we have increased our production outlook by 5 Mb/d to 1,959 Mb/d, up 103 Mb/d, or 5.5%, from 2022. Almost all production growth for the year is in PADD 3, primarily in the Permian Basin, with more than nine new gas processing plants scheduled to come online by the end of 2023.

## REFINERY PRODUCTION UP AS UTILIZATION INCREASES

May refinery propane production increased by 5 Mb/d to 292 Mb/d as capacity utilization increased by 1.4 percentage points to 92%. We forecast that production in June will decline to 286 Mb/d as refinery utilization falls back to about 90%. For 2023, we expect refinery propane production will be relatively flat and average 284 Mb/d for the year, up 1 Mb/d from 2022, due to slightly higher capacity utilization.

## U.S. PROPANE INFRASTRUCTURE MAP

Figure 6.1



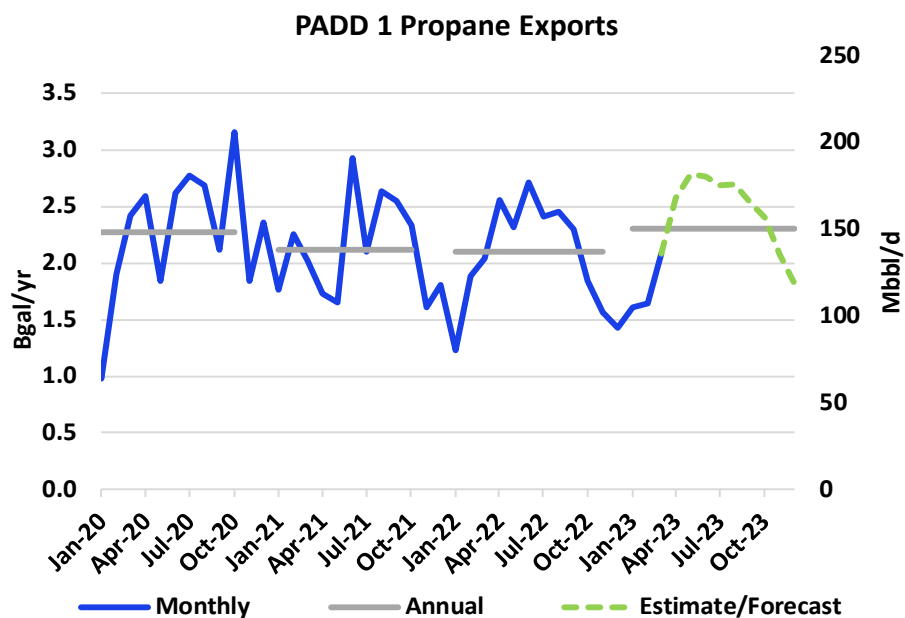
### [US Propane Infrastructure Map](#)

Click on the link above for RBN's U.S. Propane Infrastructure Map, which fits together all the pieces of an opaque and regionally fragmented propane market to reveal the extensive domestic propane network in a clear, concise map.

## PADD 1: PROPANE SUPPLY &amp; DEMAND

| Table F:                 | MM gal / month |            |            |            |            |            |            | M bbl / day  |              |              |              |              |              |              |
|--------------------------|----------------|------------|------------|------------|------------|------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
|                          | EIA MONTHLY    |            | ESTIMATED  |            | FORECAST   |            |            | EIA MONTHLY  |              | ESTIMATED    |              | FORECAST     |              |              |
|                          | Feb-23         | Mar-23     | Apr-23     | May-23     | Jun-23     | Jul-23     | Aug-23     | Feb-23       | Mar-23       | Apr-23       | May-23       | Jun-23       | Jul-23       | Aug-23       |
| Production               | 275            | 306        | 302        | 314        | 300        | 312        | 314        | 234          | 235          | 240          | 241          | 238          | 240          | 241          |
| Gas Plants               | 261            | 290        | 283        | 295        | 281        | 292        | 293        | 222          | 223          | 224          | 226          | 223          | 224          | 225          |
| Refinery                 | 14             | 16         | 19         | 19         | 19         | 20         | 21         | 12           | 12           | 15           | 15           | 15           | 15           | 16           |
| Imports                  | 60             | 57         | 19         | 12         | 18         | 18         | 19         | 51           | 44           | 15           | 10           | 14           | 14           | 15           |
| Net Inter-PADD Transfers | 263            | 190        | 219        | 186        | 181        | 197        | 213        | 224          | 146          | 174          | 143          | 144          | 152          | 164          |
| <b>TOTAL SUPPLY</b>      | <b>599</b>     | <b>553</b> | <b>540</b> | <b>512</b> | <b>499</b> | <b>527</b> | <b>546</b> | <b>509</b>   | <b>425</b>   | <b>428</b>   | <b>393</b>   | <b>396</b>   | <b>405</b>   | <b>419</b>   |
| Demand (Prod. Supplied)  | 502            | 406        | 328        | 241        | 242        | 273        | 284        | 427          | 312          | 261          | 185          | 192          | 210          | 218          |
| Exports                  | 126            | 177        | 212        | 237        | 227        | 228        | 229        | 107          | 136          | 168          | 182          | 181          | 175          | 176          |
| Stock Change             | (29)           | (29)       | (0)        | 34         | 30         | 25         | 33         | (25)         | (22)         | (0)          | 26           | 24           | 20           | 25           |
| <b>TOTAL DISPOSITION</b> | <b>599</b>     | <b>555</b> | <b>540</b> | <b>512</b> | <b>499</b> | <b>527</b> | <b>546</b> | <b>509</b>   | <b>426</b>   | <b>428</b>   | <b>393</b>   | <b>396</b>   | <b>405</b>   | <b>419</b>   |
| <b>TOTAL INVENTORY</b>   | <b>237</b>     | <b>208</b> | <b>208</b> | <b>242</b> | <b>272</b> | <b>297</b> | <b>330</b> | <b>5,648</b> | <b>4,953</b> | <b>4,946</b> | <b>5,760</b> | <b>6,470</b> | <b>7,077</b> | <b>7,853</b> |

Figure 7.1



## INSIGHTS &amp; ANALYSIS

PADD 1 (East Coast) inventories built by 814 Mbbl in May, which was below the 1.7-MMbbl increase last year and the 5-year average gain of 1.2 MMbbl. Strong exports were the primary reason for the smaller build, leaving stocks at 5.8 MMbbl (242 MMgal). This puts PADD 1 inventory 851 Mbbl above May 2022 and 952 Mbbl higher than the 5-year average. Exports were strong at 182 Mb/d, up 14 Mb/d from April. Gas plant production in the Northeast was slightly higher, increasing by 2 Mb/d to 226 Mb/d.

## PADD 1 OUTLOOK

Our propane model estimates East Coast inventories will increase by 710 Mbbl in June to 6.5 MMbbl (272 MMgal), leaving stocks 0.9 MMbbl, or 16%, above the 5-year average. As shown in Figure 7.1, East Coast exports are expected remain strong in June at 181 Mb/d, which is 47 Mb/d above the 2022 average rate and 4 Mb/d higher than June 2022. Exports are projected to average 150 Mb/d in 2023, an increase of 16 Mb/d from last year.

## PADD 2: PROPANE SUPPLY &amp; DEMAND

| Table G:                 | MM gal / month |            |            |            |            |            |              | M bbl / day   |               |               |               |               |               |               |
|--------------------------|----------------|------------|------------|------------|------------|------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
|                          | EIA MONTHLY    |            | ESTIMATED  |            | FORECAST   |            |              | EIA MONTHLY   |               | ESTIMATED     |               | FORECAST      |               |               |
|                          | Feb-23         | Mar-23     | Apr-23     | May-23     | Jun-23     | Jul-23     | Aug-23       | Feb-23        | Mar-23        | Apr-23        | May-23        | Jun-23        | Jul-23        | Aug-23        |
| Production               | 553            | 612        | 587        | 612        | 592        | 615        | 617          | 470           | 470           | 466           | 470           | 470           | 472           | 474           |
| Gas Plants               | 465            | 510        | 495        | 516        | 500        | 518        | 519          | 395           | 392           | 393           | 396           | 397           | 398           | 398           |
| Refinery                 | 88             | 102        | 92         | 97         | 93         | 97         | 98           | 75            | 78            | 73            | 74            | 73            | 75            | 76            |
| Imports                  | 61             | 40         | 20         | 16         | 17         | 17         | 16           | 52            | 31            | 16            | 12            | 14            | 13            | 12            |
| Net Inter-PADD Transfers | (490)          | (467)      | (424)      | (417)      | (353)      | (390)      | (414)        | (417)         | (359)         | (336)         | (320)         | (280)         | (300)         | (318)         |
| <b>TOTAL SUPPLY</b>      | <b>123</b>     | <b>185</b> | <b>183</b> | <b>211</b> | <b>256</b> | <b>241</b> | <b>219</b>   | <b>105</b>    | <b>142</b>    | <b>146</b>    | <b>162</b>    | <b>203</b>    | <b>185</b>    | <b>168</b>    |
| Demand (Prod. Supplied)  | 339            | 296        | 146        | 41         | 89         | 100        | 120          | 288           | 227           | 116           | 32            | 71            | 77            | 93            |
| Exports                  | 4              | 7          | 6          | 10         | 7          | 7          | 7            | 3             | 5             | 5             | 7             | 6             | 6             | 5             |
| Stock Change             | (219)          | (117)      | 31         | 160        | 160        | 134        | 92           | (186)         | (90)          | 25            | 123           | 127           | 103           | 71            |
| <b>TOTAL DISPOSITION</b> | <b>123</b>     | <b>185</b> | <b>183</b> | <b>211</b> | <b>256</b> | <b>241</b> | <b>219</b>   | <b>105</b>    | <b>142</b>    | <b>146</b>    | <b>162</b>    | <b>203</b>    | <b>185</b>    | <b>168</b>    |
| <b>TOTAL INVENTORY</b>   | <b>619</b>     | <b>502</b> | <b>534</b> | <b>694</b> | <b>854</b> | <b>988</b> | <b>1,080</b> | <b>14,748</b> | <b>11,963</b> | <b>12,709</b> | <b>16,524</b> | <b>20,328</b> | <b>23,525</b> | <b>25,720</b> |

## INSIGHTS &amp; ANALYSIS

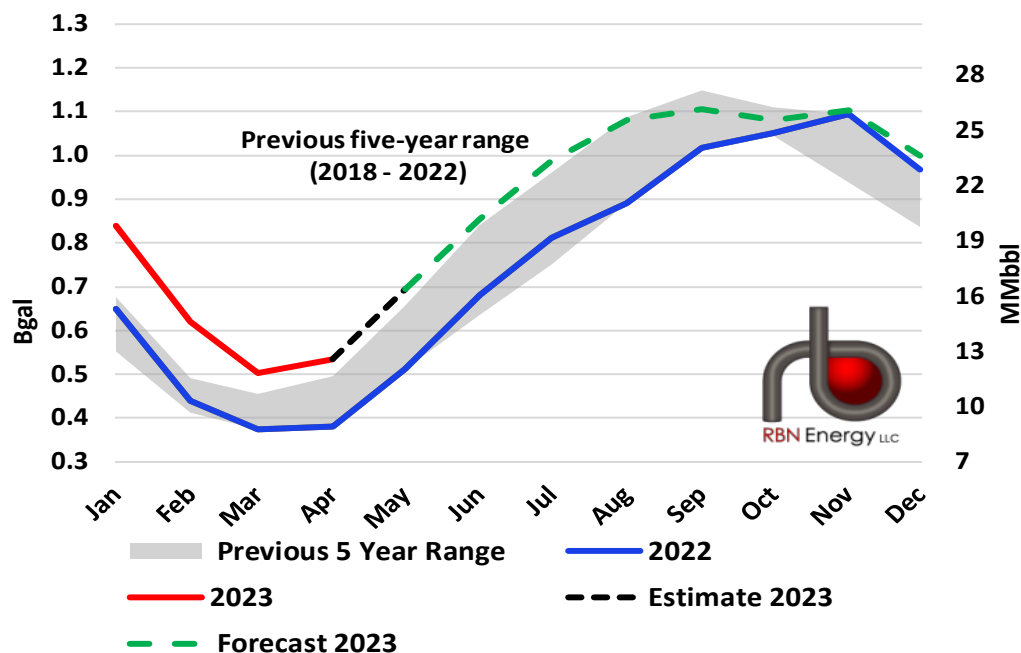
PADD 2 (Midwest) inventories built by 3.8 MMbbl during May, which was above the 3.1 MMbbl increase last year and the 5-year average build of 3.3 MMbbl, with stocks ending at 16.5 MMbbl (694 MMgal). The Midwest market is in a more comfortable supply position compared to last year with 4.3 MMbbl more in storage. Production was marginally higher in May at 470 Mb/d. Imports fell by 4 Mb/d to 12 Mb/d, which is 23 Mb/d less than last year and 33 Mb/d below the 2022 average rate.

## PADD 2 OUTLOOK

Midwest inventories are forecast to build by 3.8 Mbbl in June compared to a 5-year average increase of 3.7 MMbbl, bringing ending inventories to 20.3 MMbbl (854 MMgal), 4.1 MMbbl above last year and 2.7 MMbbl above the 5-year average. Canadian imports into the Midwest are projected to average 24 Mb/d in 2023, down 21 Mb/d from last year, primarily due to the ramp-up of Inter Pipeline's propane dehydrogenation (PDH) plant in Western Canada (22 Mb/d propane demand).

Figure 7.2

## PADD 2 Monthly EIA Propane Inventories

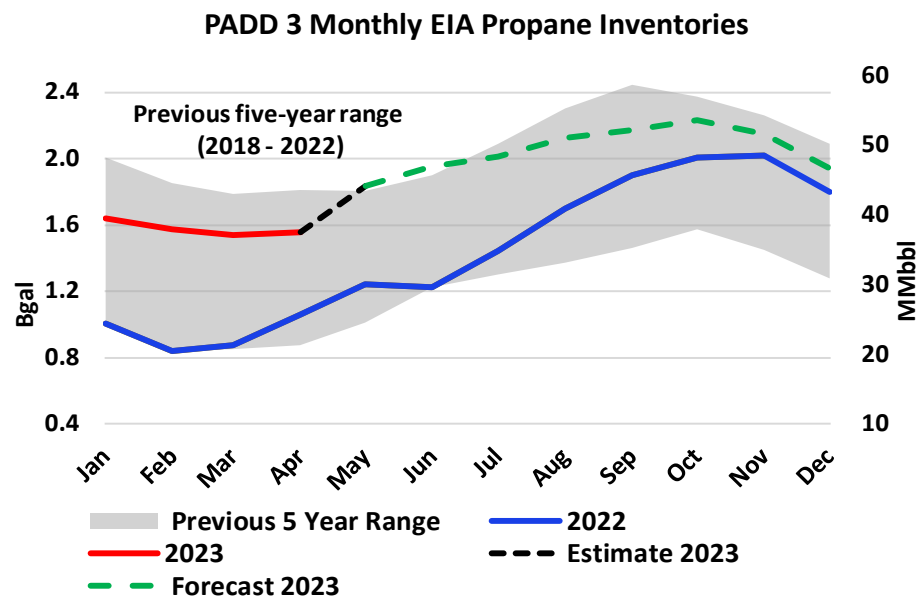


Source: EIA

## PADD 3: PROPANE SUPPLY &amp; DEMAND

| Table H:                 | MM gal / month |              |              |              |              |              |              | M bbl / day   |               |               |               |               |               |               |
|--------------------------|----------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
|                          | EIA MONTHLY    |              | ESTIMATED    |              | FORECAST     |              |              | EIA MONTHLY   |               | ESTIMATED     |               | FORECAST      |               |               |
|                          | Feb-23         | Mar-23       | Apr-23       | May-23       | Jun-23       | Jul-23       | Aug-23       | Feb-23        | Mar-23        | Apr-23        | May-23        | Jun-23        | Jul-23        | Aug-23        |
| Production               | 1,438          | 1,665        | 1,629        | 1,698        | 1,654        | 1,722        | 1,732        | 1,223         | 1,279         | 1,293         | 1,304         | 1,312         | 1,323         | 1,330         |
| Gas Plants               | 1,259          | 1,466        | 1,424        | 1,483        | 1,450        | 1,509        | 1,519        | 1,071         | 1,126         | 1,130         | 1,139         | 1,151         | 1,159         | 1,167         |
| Refinery                 | 179            | 199          | 206          | 215          | 203          | 213          | 213          | 152           | 153           | 163           | 165           | 161           | 164           | 164           |
| Imports                  | -              | -            | -            | -            | -            | -            | -            | -             | -             | -             | -             | -             | -             | -             |
| Net Inter-PADD Transfers | 392            | 469          | 396          | 441          | 361          | 383          | 394          | 333           | 360           | 314           | 338           | 286           | 294           | 303           |
| <b>TOTAL SUPPLY</b>      | <b>1,830</b>   | <b>2,134</b> | <b>2,025</b> | <b>2,139</b> | <b>2,015</b> | <b>2,105</b> | <b>2,127</b> | <b>1,556</b>  | <b>1,639</b>  | <b>1,607</b>  | <b>1,643</b>  | <b>1,599</b>  | <b>1,617</b>  | <b>1,633</b>  |
| Demand (Prod. Supplied)  | 240            | 202          | 229          | 162          | 226          | 322          | 293          | 204           | 155           | 182           | 124           | 179           | 247           | 225           |
| Exports                  | 1,657          | 1,966        | 1,778        | 1,700        | 1,670        | 1,725        | 1,719        | 1,409         | 1,510         | 1,411         | 1,306         | 1,325         | 1,325         | 1,320         |
| Stock Change             | (68)           | (35)         | 19           | 276          | 119          | 59           | 114          | (58)          | (27)          | 15            | 212           | 95            | 45            | 88            |
| <b>TOTAL DISPOSITION</b> | <b>1,829</b>   | <b>2,133</b> | <b>2,025</b> | <b>2,139</b> | <b>2,015</b> | <b>2,105</b> | <b>2,127</b> | <b>1,555</b>  | <b>1,638</b>  | <b>1,607</b>  | <b>1,643</b>  | <b>1,599</b>  | <b>1,617</b>  | <b>1,633</b>  |
| <b>TOTAL INVENTORY</b>   | <b>1,574</b>   | <b>1,539</b> | <b>1,558</b> | <b>1,834</b> | <b>1,954</b> | <b>2,013</b> | <b>2,127</b> | <b>37,476</b> | <b>36,654</b> | <b>37,095</b> | <b>43,676</b> | <b>46,521</b> | <b>47,918</b> | <b>50,643</b> |

Figure 7.3



Source: EIA

## INSIGHTS &amp; ANALYSIS

PADD 3 had a robust stock increase of 6.6 MMbbl for the month, which was above the 4.3-MMbbl build in May 2022 and the 5-year average increase for the month of 3.1 MMbbl. The large build brought Gulf Coast inventories to 43.7 MMbbl (1.8 Bgal) at month's end, 14.1 MMbbl higher than last year and 9.8 MMbbl, or 32%, above the 5-year average. Propane exports from the Gulf Coast were weaker at 1,306 Mb/d, down 105 Mb/d from April but 118 Mb/d higher than in May 2022. PADD 3 gas plant production increased to 1,139 Mb/d in May, up 9 Mb/d from April and only 10 Mb/d below the record high in September 2022.

## PADD 3 OUTLOOK

June inventories are forecast to build at a slower rate, as exports increase modestly, rising by 2.8 MMbbl, just above the 5-year average build of 2.7 Mbbl. That would leave June ending stocks at 46.5 MMbbl (1.9 Bgal), which is 17.3 MMbbl more than last year and 9.9 MMbbl above the 5-year average. Gulf Coast propane production is expected to grow by 12 Mb/d in June to 1,151 Mb/d, which is 2 Mb/d above September's all-time high.

## PADD 4: PROPANE SUPPLY &amp; DEMAND

| Table I:                 | MM gal / month |           |           |           |           |            |            | M bbl / day  |              |              |              |              |              |              |
|--------------------------|----------------|-----------|-----------|-----------|-----------|------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
|                          | EIA MONTHLY    |           | ESTIMATED |           | FORECAST  |            |            | EIA MONTHLY  |              | ESTIMATED    |              | FORECAST     |              |              |
|                          | Feb-23         | Mar-23    | Apr-23    | May-23    | Jun-23    | Jul-23     | Aug-23     | Feb-23       | Mar-23       | Apr-23       | May-23       | Jun-23       | Jul-23       | Aug-23       |
| Production               | 213            | 245       | 242       | 252       | 245       | 253        | 253        | 181          | 188          | 192          | 193          | 194          | 194          | 194          |
| Gas Plants               | 206            | 237       | 235       | 244       | 237       | 244        | 244        | 175          | 182          | 186          | 188          | 188          | 188          | 188          |
| Refinery                 | 7              | 8         | 8         | 8         | 8         | 8          | 9          | 6            | 6            | 6            | 6            | 6            | 6            | 7            |
| Imports                  | 38             | 34        | 17        | 15        | 10        | 14         | 13         | 32           | 26           | 14           | 11           | 8            | 11           | 10           |
| Net Inter-PADD Transfers | (178)          | (210)     | (204)     | (224)     | (208)     | (209)      | (210)      | (151)        | (161)        | (162)        | (172)        | (165)        | (160)        | (161)        |
| <b>TOTAL SUPPLY</b>      | <b>73</b>      | <b>69</b> | <b>55</b> | <b>43</b> | <b>47</b> | <b>58</b>  | <b>56</b>  | <b>62</b>    | <b>53</b>    | <b>44</b>    | <b>33</b>    | <b>37</b>    | <b>45</b>    | <b>43</b>    |
| Demand (Prod. Supplied)  | 78             | 73        | 61        | 36        | 40        | 42         | 42         | 66           | 56           | 48           | 27           | 32           | 32           | 32           |
| Exports                  | -              | -         | -         | -         | -         | -          | -          | -            | -            | -            | -            | -            | -            | -            |
| Stock Change             | (5)            | (4)       | (6)       | 7         | 6         | 17         | 15         | (4)          | (3)          | (5)          | 6            | 5            | 13           | 11           |
| <b>TOTAL DISPOSITION</b> | <b>73</b>      | <b>69</b> | <b>55</b> | <b>43</b> | <b>47</b> | <b>58</b>  | <b>56</b>  | <b>62</b>    | <b>53</b>    | <b>44</b>    | <b>33</b>    | <b>37</b>    | <b>45</b>    | <b>43</b>    |
| <b>TOTAL INVENTORY</b>   | <b>81</b>      | <b>77</b> | <b>71</b> | <b>78</b> | <b>84</b> | <b>101</b> | <b>116</b> | <b>1,927</b> | <b>1,826</b> | <b>1,682</b> | <b>1,857</b> | <b>2,007</b> | <b>2,405</b> | <b>2,752</b> |

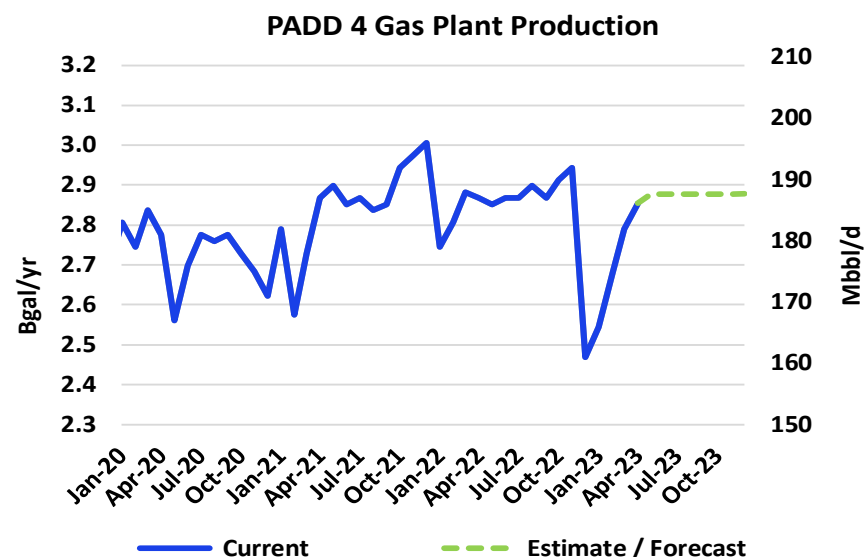
## INSIGHTS &amp; ANALYSIS

PADD 4 (Rocky Mountain) inventories built by 175 Mbbl in May to 1.9 MMbbl (78 MMgal), which is 331 Mbbl less than last year but 37 Mbbl above the 5-year average. Gas plant production continued to recover in May, increasing to 188 Mb/d, up 2 Mb/d from April (see Figure 7.4). Imports were seasonally weaker at 11 Mb/d, down 3 Mb/d from the prior month.

## PADD 4 OUTLOOK

PADD 4 inventories are projected build by 150 Mbbl during the third month of the storage injection season (April-September), bringing June stocks to 2 MMbbl (84 MMgal), which is 178 Mbbl below last year but 5.1 Mbbl above the 5-year average. PADD 4 gas plant production is expected to remain flat in June at 188 Mb/d and average 184 Mb/d for the year, down 1 Mb/d from 2022.

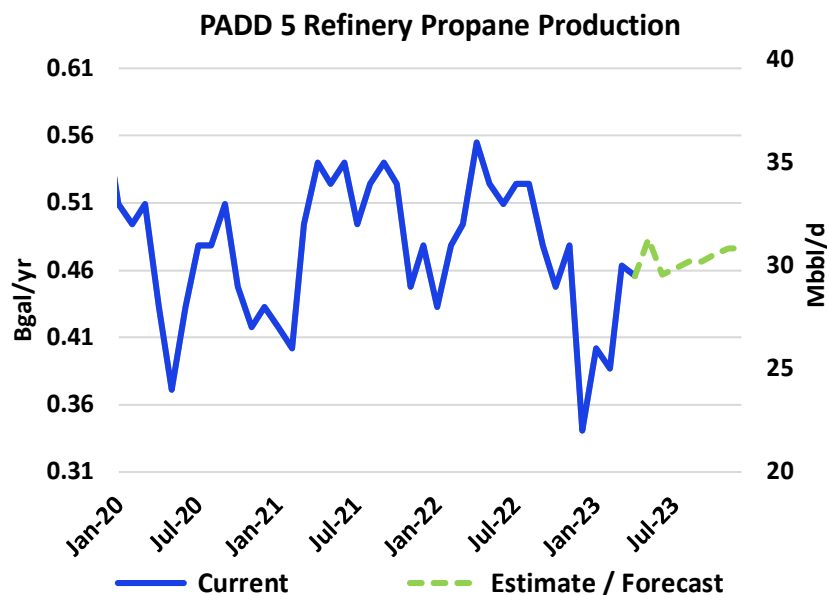
Figure 7.4



## PADD 5: PROPANE SUPPLY &amp; DEMAND

| Table J:                 | MM gal / month |            |            |            |           |           |           | M bbl / day |            |            |            |            |              |              |
|--------------------------|----------------|------------|------------|------------|-----------|-----------|-----------|-------------|------------|------------|------------|------------|--------------|--------------|
|                          | EIA MONTHLY    |            | ESTIMATED  |            | FORECAST  |           |           | EIA MONTHLY |            | ESTIMATED  |            | FORECAST   |              |              |
|                          | Feb-23         | Mar-23     | Apr-23     | May-23     | Jun-23    | Jul-23    | Aug-23    | Feb-23      | Mar-23     | Apr-23     | May-23     | Jun-23     | Jul-23       | Aug-23       |
| Production               | 39             | 48         | 47         | 51         | 47        | 49        | 49        | 33          | 37         | 37         | 39         | 37         | 37           | 38           |
| Gas Plants               | 9              | 9          | 10         | 10         | 10        | 10        | 10        | 8           | 7          | 8          | 8          | 8          | 8            | 8            |
| Refinery                 | 29             | 39         | 37         | 41         | 37        | 39        | 39        | 25          | 30         | 29         | 31         | 30         | 30           | 30           |
| Imports                  | 47             | 48         | 43         | 36         | 28        | 29        | 32        | 40          | 37         | 34         | 28         | 23         | 23           | 25           |
| Net Inter-PADD Transfers | 13             | 18         | 13         | 13         | 19        | 18        | 16        | 11          | 14         | 10         | 10         | 15         | 14           | 12           |
| <b>TOTAL SUPPLY</b>      | <b>99</b>      | <b>115</b> | <b>102</b> | <b>101</b> | <b>94</b> | <b>96</b> | <b>97</b> | <b>84</b>   | <b>88</b>  | <b>81</b>  | <b>78</b>  | <b>74</b>  | <b>74</b>    | <b>75</b>    |
| Demand (Prod. Supplied)  | 74             | 72         | 50         | 52         | 58        | 47        | 49        | 63          | 55         | 39         | 40         | 46         | 36           | 38           |
| Exports                  | 39             | 59         | 48         | 39         | 33        | 33        | 36        | 33          | 45         | 38         | 30         | 26         | 25           | 28           |
| Stock Change             | (15)           | (16)       | 5          | 10         | 3         | 17        | 12        | (13)        | (12)       | 4          | 8          | 2          | 13           | 10           |
| <b>TOTAL DISPOSITION</b> | <b>98</b>      | <b>115</b> | <b>102</b> | <b>101</b> | <b>94</b> | <b>96</b> | <b>97</b> | <b>83</b>   | <b>88</b>  | <b>81</b>  | <b>78</b>  | <b>74</b>  | <b>74</b>    | <b>75</b>    |
| <b>TOTAL INVENTORY</b>   | <b>33</b>      | <b>17</b>  | <b>22</b>  | <b>32</b>  | <b>35</b> | <b>53</b> | <b>65</b> | <b>789</b>  | <b>416</b> | <b>530</b> | <b>771</b> | <b>845</b> | <b>1,251</b> | <b>1,548</b> |

Figure 7.5



## INSIGHTS &amp; ANALYSIS

PADD 5 (West Coast) inventories grew by 241 Mbbl in May to 771 Mbbl (32 MMgal), leaving stocks only 3 Mbbl higher than last year (5-year minimum) and 290 Mbbl below the 5-year average. Refinery production was up 2 Mb/d to 31 Mb/d as capacity utilization increased by 3 percentage points to 86.4%. West Coast exports were weaker than the prior month at 30 Mb/d but in line with imports, which fell to 28 Mb/d.

## PADD 5 OUTLOOK

Our propane model projects West Coast inventories to increase modestly in June to 845 Mbbl (35 MMgal), leaving stocks 450 Mbbl below the 5-year average. As shown in Figure 7.5, refinery production in PADD 5 is expected to be slightly weaker at 30 Mb/d in June as capacity utilization falls to 85%. Imports are projected to decline to 23 Mb/d and average 30 Mb/d for the year, up 3 Mb/d from 2022. West Coast exports for June are estimated at 26 Mb/d, down 4 Mb/d from the prior month. PADD 5 exports are forecast to average 29 Mb/d for the year, up 2 Mb/d from 2022.

## KEY ENERGY PRICES

| Table K:              |          | Prices              |                         |        |        |                         |        |        |                        |         |        |
|-----------------------|----------|---------------------|-------------------------|--------|--------|-------------------------|--------|--------|------------------------|---------|--------|
| Product               | Units    | Current<br>2-Jun-23 | Prior Week<br>26-May-23 | W/W    | W/W %  | Prior Month<br>2-May-23 | M/M    | M/M %  | Prior Year<br>2-Jun-22 | Y/Y     | Y/Y %  |
| Brent Crude           | \$/bbl   | 76.1                | 77.0                    | (0.8)  | -1.1%  | 75.3                    | 0.8    | 1.1%   | 117.6                  | (41.5)  | -35.3% |
| WTI Cushing Crude     | \$/bbl   | 71.7                | 72.7                    | (0.9)  | -1.3%  | 71.7                    | 0.1    | 0.1%   | 116.9                  | (45.1)  | -38.6% |
| Henry Hub Natural Gas | \$/MMBtu | 2.17                | 2.42                    | (0.25) | -10.1% | 2.21                    | (0.04) | -1.9%  | 8.49                   | (6.31)  | -74.4% |
| <b>Propane</b>        |          |                     |                         |        |        |                         |        |        |                        |         |        |
| Mont Belvieu Non-TET  | c/gal    | 58.2                | 62.4                    | (4.2)  | -6.8%  | 66.7                    | (8.5)  | -12.8% | 121.2                  | (63.0)  | -52.0% |
| Mont Belvieu TET      | c/gal    | 58.5                | 62.8                    | (4.3)  | -6.9%  | 67.3                    | (8.8)  | -13.1% | 121.8                  | (63.2)  | -51.9% |
| Conway                | c/gal    | 57.9                | 60.5                    | (2.6)  | -4.4%  | 66.1                    | (8.3)  | -12.5% | 119.5                  | (61.7)  | -51.6% |
| Edmonton*             | c/gal    | 37.8                | 43.4                    | (5.5)  | -12.8% | 51.4                    | (13.6) | -26.4% | 98.4                   | (60.6)  | -61.6% |
| European (ARA)        | \$/MT    | 411.5               | 429.9                   | (18.4) | -4.3%  | 444.2                   | (32.8) | -7.4%  | 740.7                  | (329.3) | -44.5% |
| Asian (FEI)           | \$/MT    | 502.7               | 524.7                   | (22.0) | -4.2%  | 519.5                   | (16.9) | -3.3%  | 795.1                  | (292.4) | -36.8% |

Figure 8.1

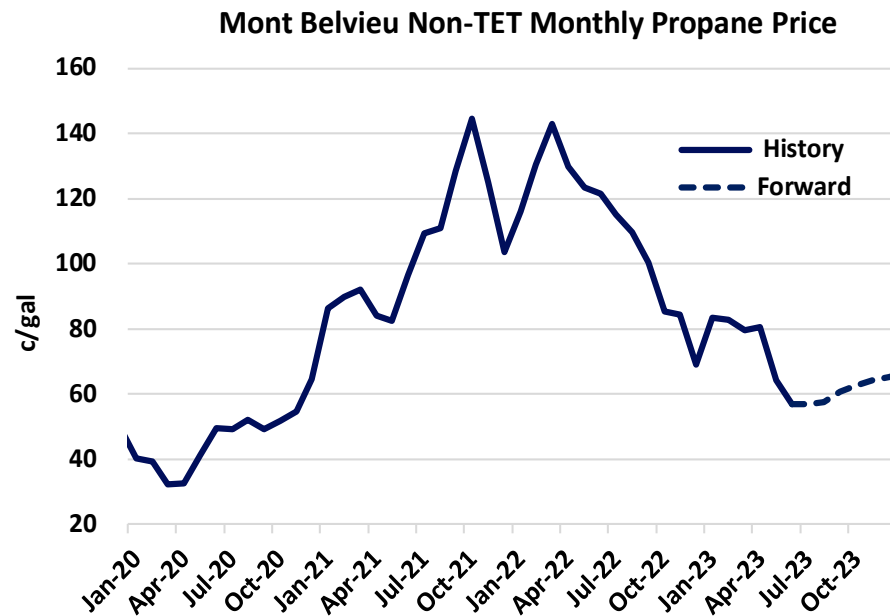
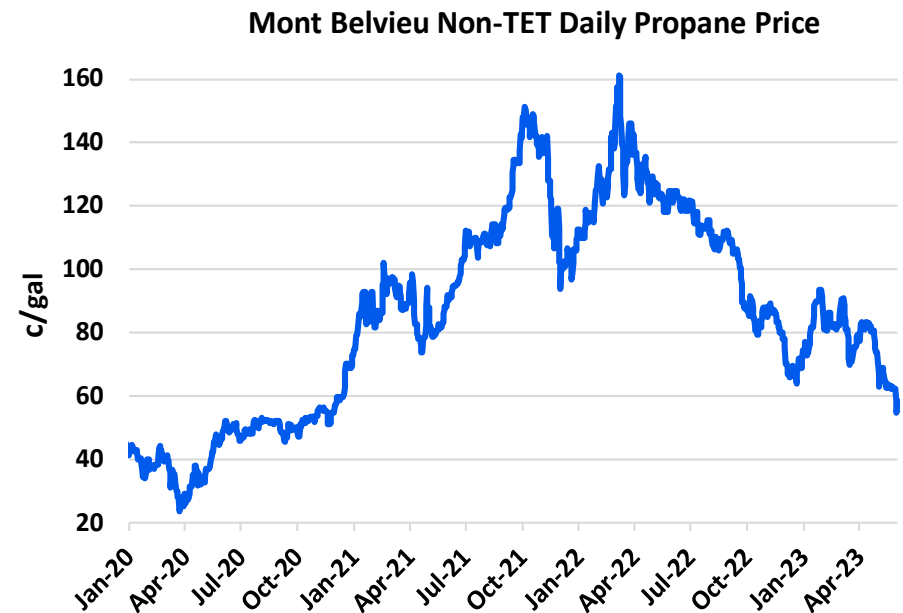


Figure 8.2



## MONTHLY PROPANE PRICE TRENDS

Figure 8.3

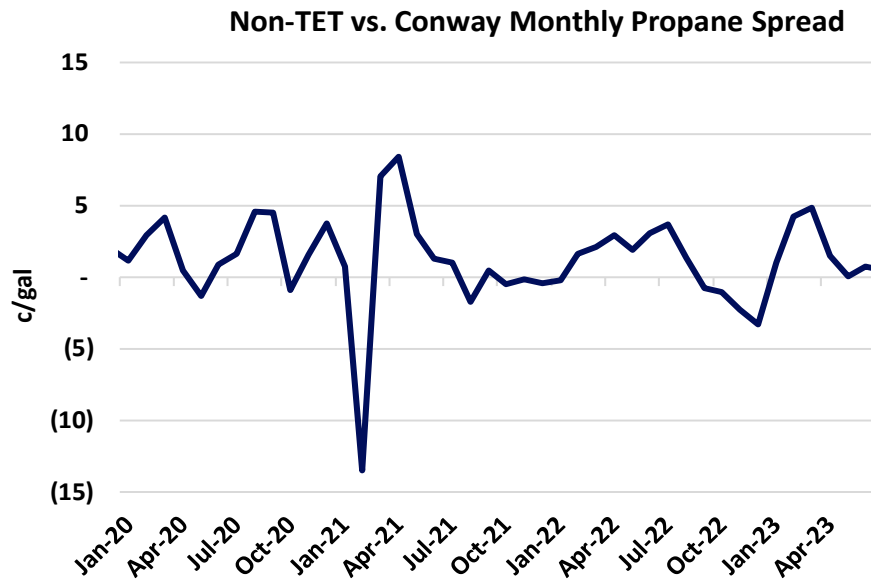


Figure 8.4

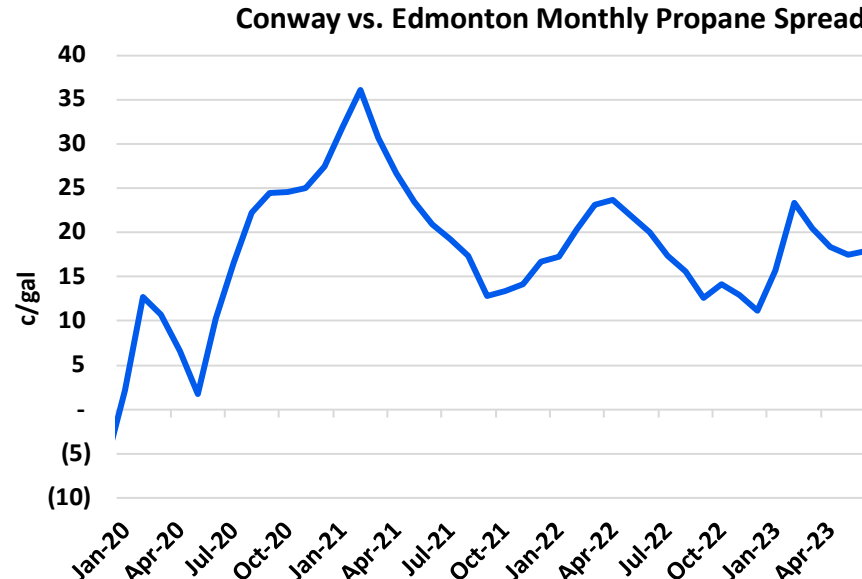
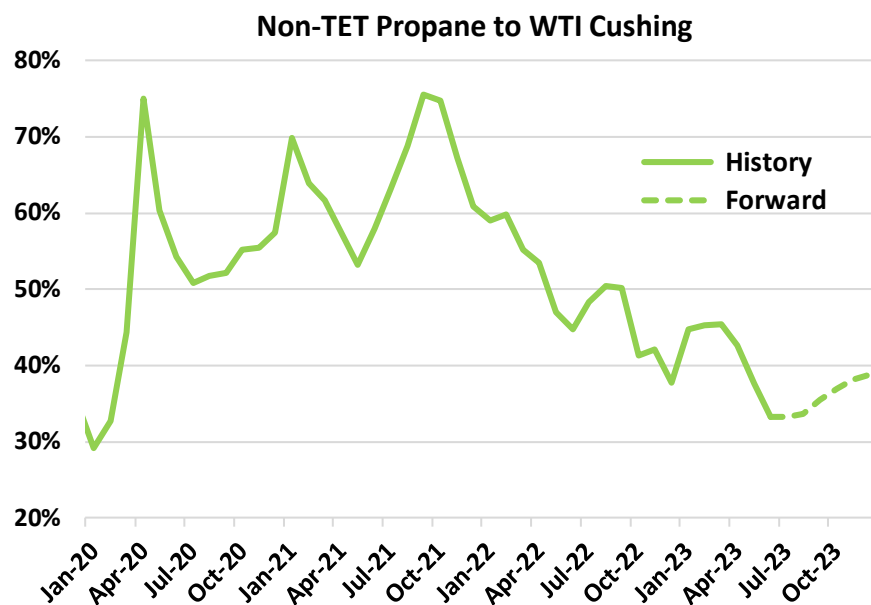


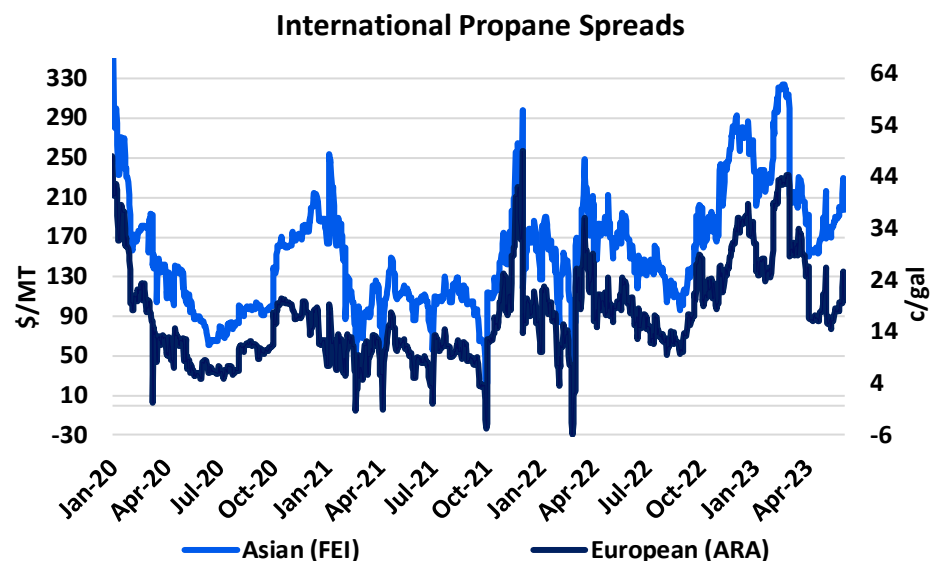
Figure 8.5



| Table L: MB TET Propane / WTI Cushing |       |       |       |       |        |
|---------------------------------------|-------|-------|-------|-------|--------|
| %                                     | 2020  | 2021  | 2022  | 2023  | Y/Y %  |
| Mar                                   | 45.3% | 62.0% | 55.6% | 45.6% | -18.1% |
| Apr                                   | 67.6% | 56.5% | 54.2% | 42.7% | -21.2% |
| May                                   | 59.1% | 53.2% | 47.3% | 38.1% | -19.4% |
| Q1                                    | 36.6% | 65.8% | 58.3% | 45.0% | -22.9% |
| Q2                                    | 60.5% | 55.5% | 48.8% | 40.2% | -17.6% |
| Q3                                    | 50.6% | 69.2% | 49.5% |       |        |
| Q4                                    | 56.0% | 67.7% | 40.8% |       |        |
| Year                                  | 51.0% | 64.6% | 49.3% | 43.0% | -12.8% |

## INTERNATIONAL PROPANE PRICE SPREADS

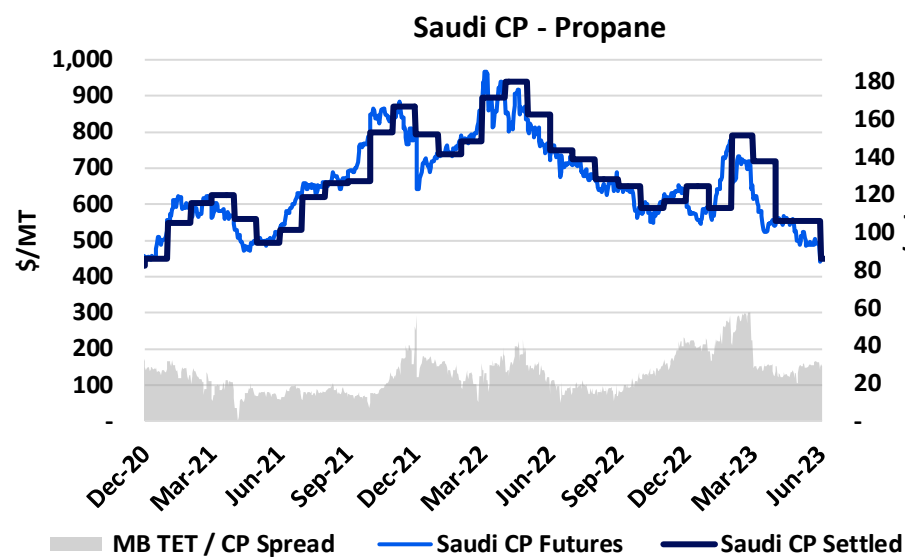
Figure 9.1



| Table M: Asian FEI / MB TET Spread |       |       |       |       |       |
|------------------------------------|-------|-------|-------|-------|-------|
| \$/MT                              | 2020  | 2021  | 2022  | 2023  | Y/Y % |
| Mar                                | 151.8 | 102.4 | 181.7 | 209.4 | 15.2% |
| Apr                                | 125.8 | 112.7 | 175.1 | 166.2 | -5.0% |
| May                                | 96.9  | 108.1 | 172.8 | 187.3 | 8.4%  |
| Q1                                 | 192.9 | 129.5 | 151.5 | 247.9 | 63.6% |
| Q2                                 | 97.6  | 106.1 | 163.8 | 177.6 | 8.4%  |
| Q3                                 | 91.0  | 101.1 | 134.0 |       |       |
| Q4                                 | 175.0 | 163.6 | 232.5 |       |       |
| Year                               | 139.1 | 125.1 | 170.6 | 218.9 | 28.3% |

| Table N: European ARA / MB TET Spread |       |       |       |       |        |
|---------------------------------------|-------|-------|-------|-------|--------|
| \$/MT                                 | 2020  | 2021  | 2022  | 2023  | Y/Y %  |
| Mar                                   | 72.0  | 56.6  | 134.5 | 156.4 | 16.2%  |
| Apr                                   | 60.1  | 60.6  | 99.3  | 96.1  | -3.2%  |
| May                                   | 37.0  | 53.0  | 106.3 | 95.5  | -10.1% |
| Q1                                    | 121.6 | 53.5  | 90.5  | 171.3 | 89.2%  |
| Q2                                    | 44.8  | 50.7  | 98.3  | 96.2  | -2.2%  |
| Q3                                    | 49.8  | 48.3  | 79.3  |       |        |
| Q4                                    | 89.5  | 111.3 | 147.9 |       |        |
| Year                                  | 76.4  | 66.0  | 104.1 | 140.4 | 34.8%  |

Figure 9.2



| Table O: Saudi CP / MB TET Spread |       |       |       |       |        |
|-----------------------------------|-------|-------|-------|-------|--------|
| \$/MT                             | 2020  | 2021  | 2022  | 2023  | Y/Y %  |
| Mar                               | 97.1  | 95.5  | 150.8 | 150.0 | -0.6%  |
| Apr                               | 123.5 | 65.2  | 174.7 | 128.7 | -26.3% |
| May                               | 105.3 | 75.1  | 140.0 | 154.7 | 10.5%  |
| Q1                                | 189.7 | 118.4 | 136.5 | 216.9 | 58.9%  |
| Q2                                | 103.4 | 74.8  | 135.3 | 142.3 | 5.2%   |
| Q3                                | 107.5 | 77.5  | 91.6  |       |        |
| Q4                                | 150.0 | 144.3 | 178.4 |       |        |
| Year                              | 137.6 | 103.7 | 135.4 | 186.2 | 37.5%  |

## U.S. PROPANE SUPPLY &amp; DEMAND BALANCE DETAIL

| Table P:                 | MM gal / month |              |              |              |              |              |              | M bbl / day    |                |               |               |               |               |               |
|--------------------------|----------------|--------------|--------------|--------------|--------------|--------------|--------------|----------------|----------------|---------------|---------------|---------------|---------------|---------------|
|                          | EIA MONTHLY    |              | ESTIMATED    |              | FORECAST     |              |              | EIA MONTHLY    |                | ESTIMATED     |               | FORECAST      |               |               |
|                          | Feb-23         | Mar-23       | Apr-23       | May-23       | Jun-23       | Jul-23       | Aug-23       | Feb-23         | Mar-23         | Apr-23        | May-23        | Jun-23        | Jul-23        | Aug-23        |
| Gas Processing           | 2,200          | 2,513        | 2,446        | 2,548        | 2,477        | 2,572        | 2,585        | 1,871          | 1,930          | 1,942         | 1,957         | 1,966         | 1,976         | 1,986         |
| Refinery Propane         | 318            | 363          | 362          | 380          | 360          | 378          | 380          | 270            | 279            | 287           | 292           | 286           | 290           | 292           |
| Imports                  | 206            | 180          | 98           | 79           | 73           | 78           | 79           | 175            | 138            | 78            | 61            | 58            | 60            | 61            |
| <b>TOTAL SUPPLY</b>      | <b>2,724</b>   | <b>3,056</b> | <b>2,906</b> | <b>3,007</b> | <b>2,911</b> | <b>3,028</b> | <b>3,045</b> | <b>2,316</b>   | <b>2,347</b>   | <b>2,306</b>  | <b>2,309</b>  | <b>2,310</b>  | <b>2,326</b>  | <b>2,338</b>  |
| Product Supplied         | 1,232          | 1,048        | 814          | 532          | 655          | 783          | 788          | 1,048          | 805            | 646           | 408           | 520           | 602           | 605           |
| ResCom                   | 703            | 714          | 560          | 454          | 320          | 327          | 326          | 598            | 548            | 444           | 349           | 254           | 251           | 251           |
| Crop Drying              | 57             | 40           | 40           | 40           | 40           | 40           | 85           | 48             | 30             | 31            | 30            | 31            | 30            | 65            |
| Industrial               | 100            | 96           | 91           | 93           | 87           | 90           | 91           | 85             | 73             | 72            | 71            | 69            | 69            | 70            |
| Petrochemicals           | 218            | 229          | 205          | 212          | 218          | 224          | 225          | 185            | 176            | 163           | 163           | 173           | 172           | 173           |
| PDH                      | 71             | 78           | 88           | 91           | 113          | 130          | 130          | 60             | 60             | 70            | 70            | 90            | 100           | 100           |
| Balancing                | 84             | (108)        | (170)        | (358)        | (122)        | (27)         | (69)         | 71             | (83)           | (135)         | (275)         | (97)          | (21)          | (53)          |
| Exports                  | 1,825          | 2,208        | 2,044        | 1,986        | 1,937        | 1,993        | 1,990        | 1,552          | 1,696          | 1,622         | 1,525         | 1,537         | 1,531         | 1,529         |
| <b>Stock Change</b>      | <b>(336)</b>   | <b>(201)</b> | <b>48</b>    | <b>488</b>   | <b>319</b>   | <b>252</b>   | <b>266</b>   | <b>(286)</b>   | <b>(154)</b>   | <b>38</b>     | <b>375</b>    | <b>253</b>    | <b>194</b>    | <b>205</b>    |
| <b>TOTAL DISPOSITION</b> | <b>2,721</b>   | <b>3,056</b> | <b>2,906</b> | <b>3,006</b> | <b>2,911</b> | <b>3,028</b> | <b>3,045</b> | <b>2,314</b>   | <b>2,347</b>   | <b>2,306</b>  | <b>2,309</b>  | <b>2,310</b>  | <b>2,326</b>  | <b>2,338</b>  |
| <b>TOTAL INVENTORY</b>   | <b>2,545</b>   | <b>2,344</b> | <b>2,392</b> | <b>2,881</b> | <b>3,199</b> | <b>3,451</b> | <b>3,718</b> | <b>60,588</b>  | <b>55,812</b>  | <b>56,961</b> | <b>68,589</b> | <b>76,172</b> | <b>82,177</b> | <b>88,517</b> |
| Last Year Inventory      | 1,559          | 1,522        | 1,688        | 2,085        | 2,272        | 2,693        | 3,054        | 37,128         | 36,244         | 40,185        | 49,644        | 54,099        | 64,130        | 72,704        |
| <b>Stock M/M Δ</b>       | <b>(336)</b>   | <b>(201)</b> | <b>48</b>    | <b>488</b>   | <b>319</b>   | <b>252</b>   | <b>266</b>   | <b>(8,008)</b> | <b>(4,774)</b> | <b>1,149</b>  | <b>11,628</b> | <b>7,583</b>  | <b>6,005</b>  | <b>6,340</b>  |
| Last Year Stock M/M Δ    | (473)          | (38)         | 165          | 397          | 188          | 419          | 361          | (11,256)       | (899)          | 3,930         | 9,455         | 4,470         | 9,982         | 8,587         |

\* Inventories are shown in billion gallons and million barrels respectively.

## PADD AVERAGE HEATING DEGREE DAYS (HDDs)

Figure 10.1

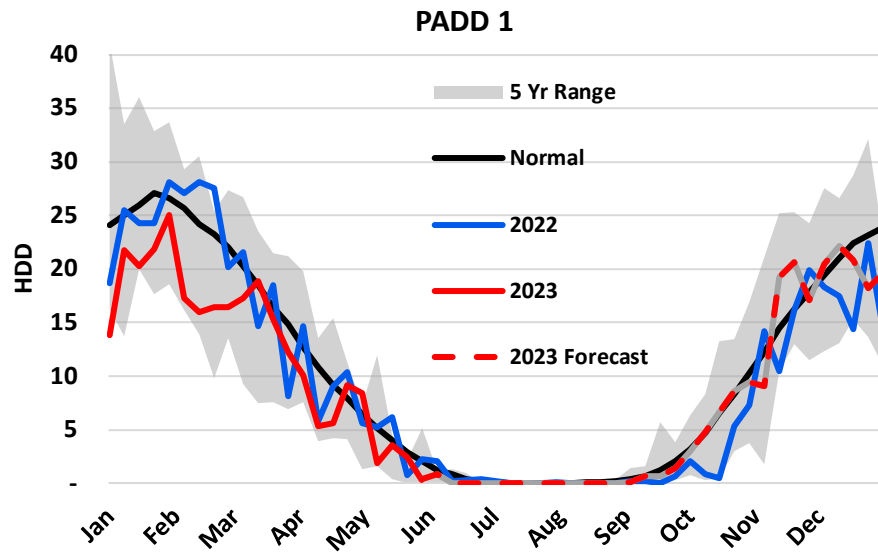


Figure 10.2

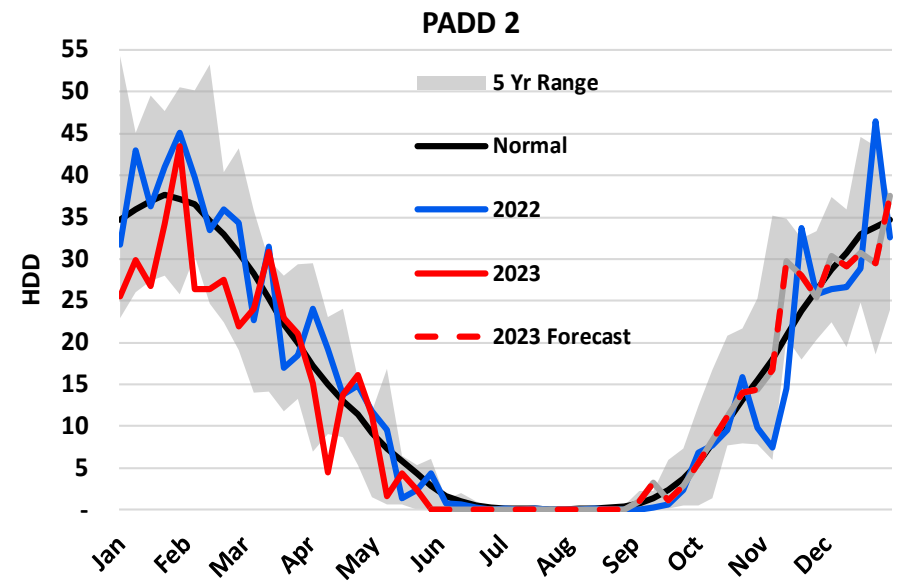


Figure 10.3

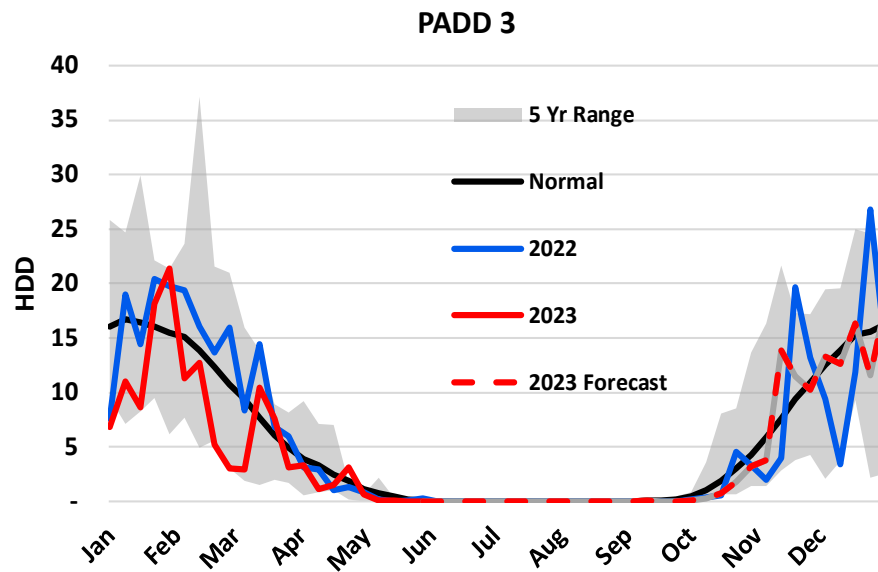


Figure 10.4

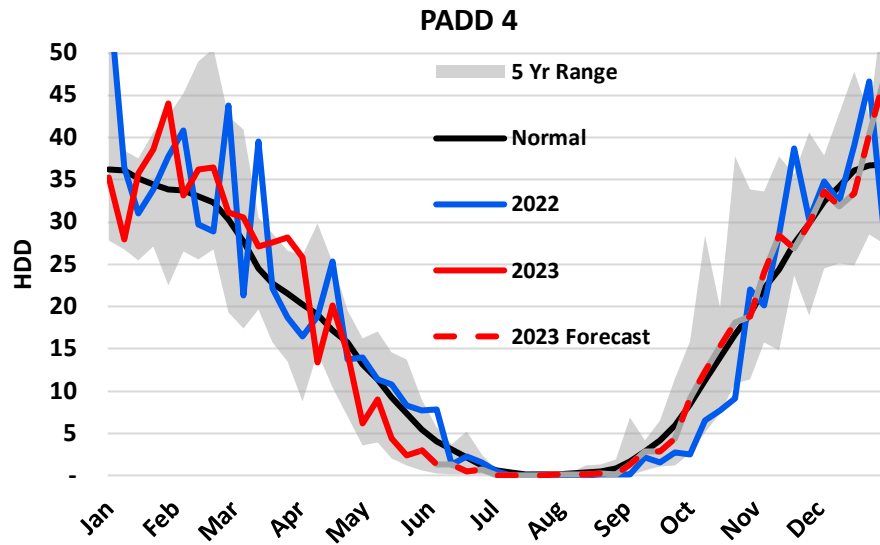
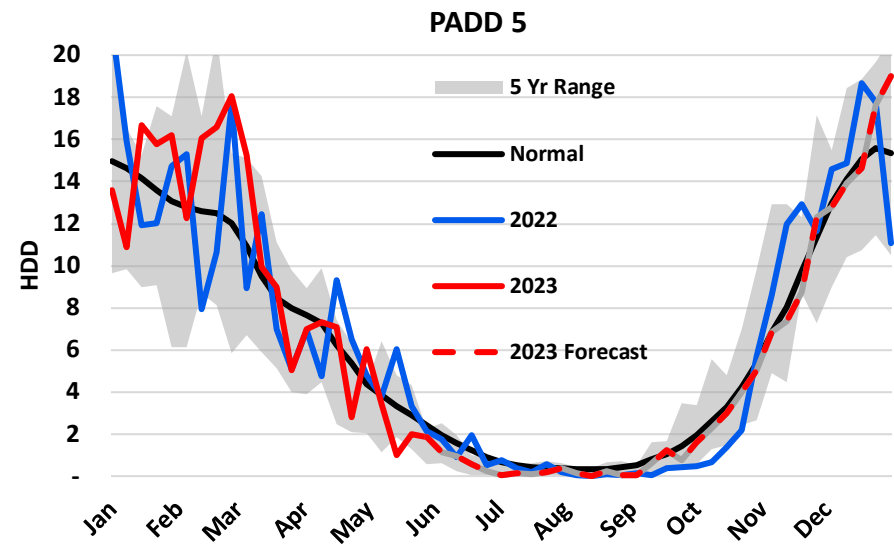


Figure 10.5



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