



RBN U.S. Propane Billboard

U.S. Propane Market Update & Outlook

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February 12, 2024

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U.S. PROPANE SUPPLY & DEMAND

Table A:	MM gal / month							M bbl / day						
	EIA MONTHLY		ESTIMATED		FORECAST			EIA MONTHLY		ESTIMATED		FORECAST		
	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24
Production	3,074	3,000	3,123	2,958	2,910	3,120	3,042	2,361	2,381	2,399	2,272	2,389	2,396	2,414
Gas Plants	2,719	2,670	2,756	2,613	2,581	2,769	2,689	2,088	2,119	2,117	2,007	2,119	2,127	2,134
Refinery	355	330	368	345	329	351	353	273	262	282	265	270	270	280
Imports	124	155	149	147	163	148	102	95	123	114	113	134	114	81
TOTAL SUPPLY	3,198	3,155	3,272	3,105	3,073	3,268	3,144	2,456	2,504	2,513	2,385	2,523	2,510	2,495
Demand (Prod. Supplied)	1,163	1,206	1,469	1,761	1,325	1,080	828	893	957	1,128	1,353	1,088	829	657
Exports	2,208	2,276	2,310	2,185	2,086	2,311	2,097	1,696	1,806	1,774	1,679	1,713	1,775	1,664
Stock Change	(174)	(328)	(507)	(842)	(338)	(122)	219	(134)	(260)	(389)	(646)	(278)	(94)	174
TOTAL DISPOSITION	3,196	3,154	3,272	3,105	3,073	3,268	3,144	2,455	2,503	2,513	2,385	2,523	2,510	2,495
TOTAL INVENTORY*	4.1	3.8	3.3	2.4	2.1	2.0	2.2	98.0	90.2	78.2	58.1	50.1	47.2	52.4

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

MONTHLY HIGHLIGHTS

- U.S. propane inventories drew by 20.1 MMbbl in January, which was well above the 8 MMbbl decline in January 2023 and the 13.6 MMbbl 10-year average decline for the month. It wasn't just cold weather behind the massive draw. Total U.S. heating degree days (HDDs) reported by the National Oceanic and Atmospheric Administration (NOAA) for January were 846, which is on par with the 10-year average for the month. We project propane inventories for the 2023-24 heating season (Oct-Mar) to fall by 55.8 MMbbl compared to a 26.2 MMbbl draw for last year's winter season and the 5-year average decline of 38.2 MMbbl. We look at the big drop in January propane inventories in more detail in our Market Spotlight section.
- The large draw in stocks sparked a rally in Mont Belvieu propane prices, which have soared 32%, or 22.8 c/gal, year-to-date. The run-up in prices pushed the propane-to-WTI Cushing ratio up to 56% in early February, the highest level for the metric since April 2022.
- The EIA reported on January 31 that Gulf Coast (PADD 3) propane exports for November soared to an all-time high of 1,651 Mb/d, which was 141 Mb/d, or 9.3%, above the prior record high in March 2023. We estimate Q4 2023 exports for the region at 1,575 Mb/d, which is 304 Mb/d, or 24%, higher than in Q4 2022. Q1 2024 shipments are forecast to remain strong at ~1,550 Mb/d, which is 136 M/d greater than in Q1 2023.
- The price differential between Asian FEI and Mont Belvieu propane plunged by 71% (\$213/MT) year-to-date, which has more than offset a 68% (\$152/MT) decline in LPG VLGC freight rates. As a result, the U.S.-Asia propane export ARB was closed (uneconomical) as of February 6.

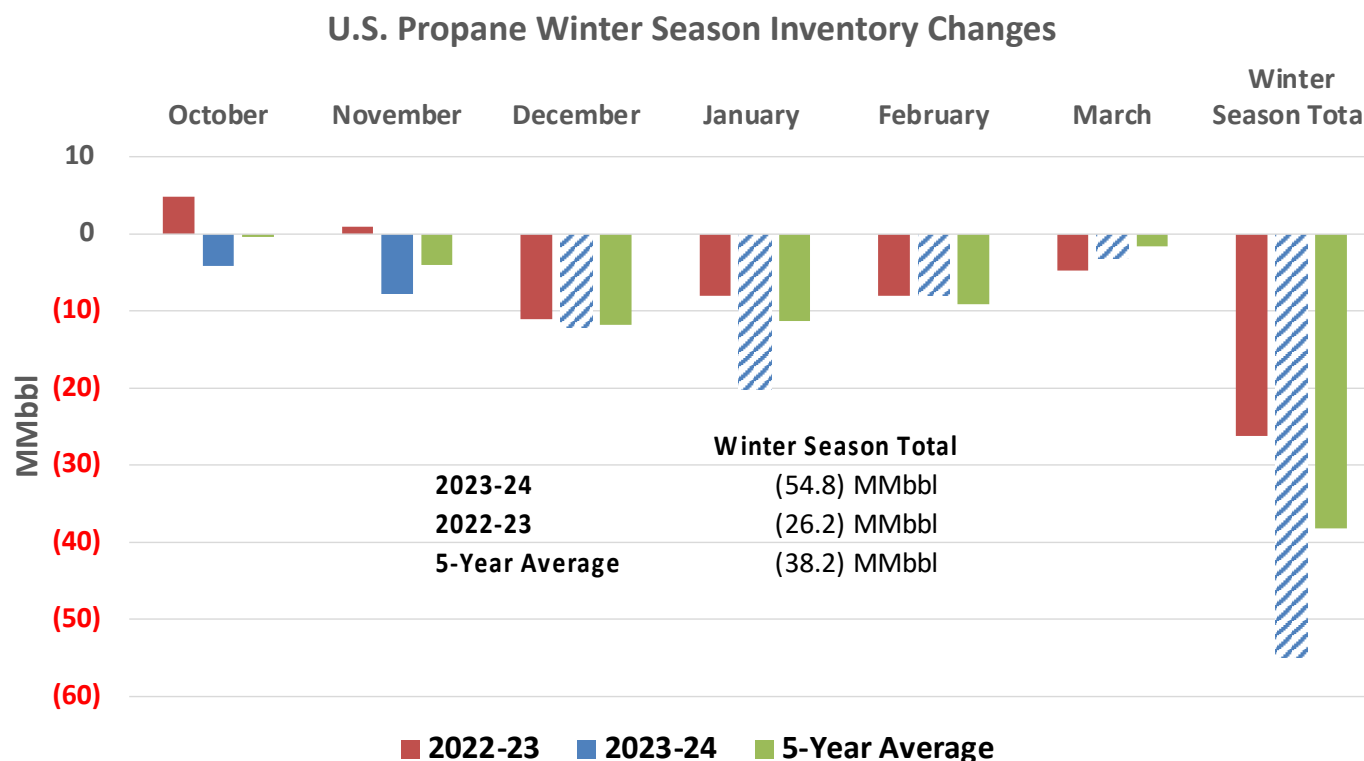
MARKET OVERVIEW

The headliner of this month's report is the massive 20 MMbbl drawdown in U.S. propane inventories, which dramatically reduced the surplus compared to the 5-year average. Gulf Coast export volumes remained robust in January and colder weather pushed up domestic heating demand, which drove the large stock draw for the month. The tighter market conditions sparked a rally in U.S. propane prices, which increased by 22 c/gal, or 32%, in January. The propane-to-WTI ratio was also much stronger, increasing above the 50% level for the first time since September 2022. Spot LPG VLGC freight rates collapsed in January but only partially offset the big rally in Mont Belvieu propane prices. As of early February, the U.S.-Asia propane ARB is closed but it doesn't look like exports have slowed at this point. No time to kick back with two months of winter left!

MONTHLY PROPANE MARKET SPOTLIGHT

U.S. PROPANE INVENTORIES PLUNGE

The U.S. propane market is abuzz as the massive inventory drawdown in January sparked a rally in Mont Belvieu prices. As shown in the chart below, we estimate that total U.S. propane stocks dropped by 20.1 MMbbl in January 2024 (blue striped bar in middle column), which was well above the 8 MMbbl decline in January 2023 (red bar) and the 11.3 MMbbl 5-year average (green bar) draw for the month. But it hasn't been just January, as the inventory cushion began shrinking in October and we project that stocks will decline by 4.8 MMbbl (blue striped bar to far right) this winter season, compared to only 26.2 MMbbl during the 2022-23 winter season (red bar) and the 5-year average of 38.2 MMbbl (green bar).



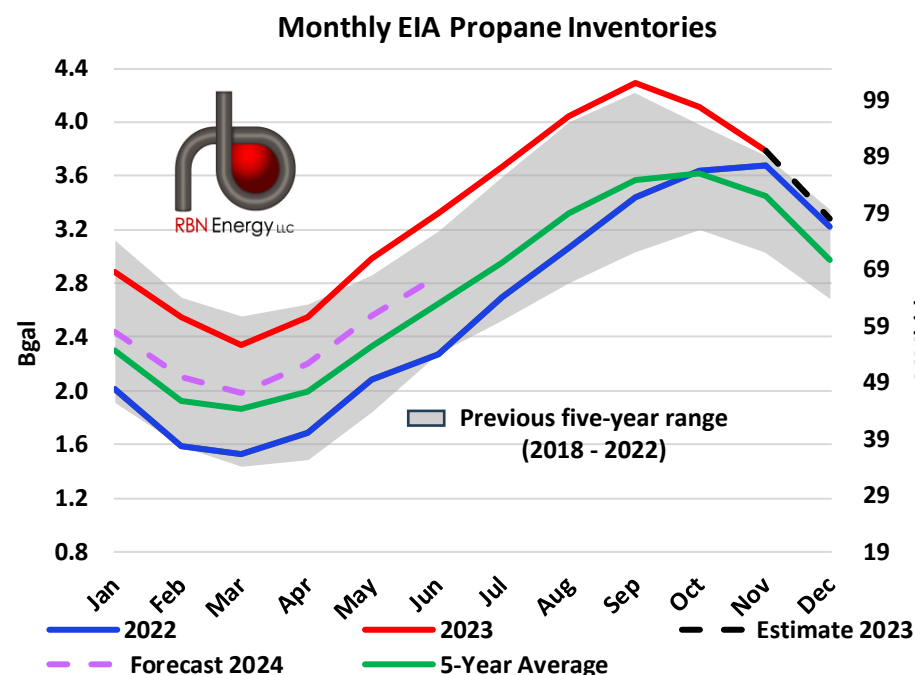
Sources: EIA, RBN Estimates

Cold weather wasn't the only reason for the massive stock draw in January as total U.S. heating degree days (HDDs) as reported by the National Oceanic and Atmospheric Administration (NOAA) were on par with the 10-year average HDDs for the month. Exports have been the primary culprit pulling inventories lower, with Q4 2023 Gulf Coast shipments up 24% over Q4 2022. But it remains to be seen if exports can remain at the robust levels seen over the last few months with the U.S.-Asia ARB closed due to the recent rally in Mont Belvieu propane prices.

U.S. PROPANE INVENTORIES

Table B: MM gal							M bbl					
	MONTHLY EIA			ESTIMATED		FORECAST	MONTHLY EIA			ESTIMATED		FORECAST
	Oct-23	Nov-23	M/M	Dec-23	Jan-24	Feb-24	Oct-23	Nov-23	M/M	Dec-23	Jan-24	Feb-24
PADD 1 (East Coast)	381	409	28	328	273	193	9,070	9,747	677	7,813	6,491	4,583
PADD 2 (Midwest)	1,139	1,067	(72)	902	671	502	27,108	25,404	(1,704)	21,487	15,986	11,959
PADD 3 (Gulf Coast)	2,346	2,066	(280)	1,849	1,326	1,272	55,855	49,191	(6,664)	44,018	31,567	30,289
PADD 4 (Rocky Mountains)	134	133	(1)	116	100	86	3,186	3,160	(26)	2,769	2,373	2,057
PADD 5 (West Coast)	117	114	(3)	87	71	49	2,794	2,715	(79)	2,064	1,695	1,172
TOTAL PROPANE	4,117	3,789	(327)	3,282	2,441	2,103	98,013	90,217	(7,796)	78,150	58,111	50,060
Propylene	56	64	8	63	52	45	1,341	1,526	185	1,497	1,235	1,062
TOTAL INVENTORIES	4,173	3,853	(320)	3,345	2,493	2,147	99,354	91,743	(7,611)	79,647	59,346	51,122

Figure 1.1



Source: EIA, RBN Forecast

ANALYSIS & INSIGHTS

Total U.S. propane inventories fell by 20.1 MMbbl in January, which was well above the 8 MMbbl decline last year and the 13 MMbbl 5-year average (2018-22) draw for the month. Total U.S. propane stocks at month-end were 58.1 MMbbl (2.4 Bgal), which is 10.5 MMbbl, or 15%, below last January but 3.3 MMbbl, or 6%, above the 5-year average. PADD 3 had a large draw of 12.5 MMbbl for the month, well above the 3.7-MMbbl decline for the period in 2023. Gulf Coast inventories are now 7.5 MMbbl, or 19%, below January 2023. PADD 2 inventories declined by 5.5 MMbbl, which was slightly above the 5.3 MMbbl average draw for the month. Midwest stocks are now only 0.9 MMbbl, or 6%, higher than the 5-year average. PADD 1 inventories drew by 1.3 MMbbl, which is on par with the 5-year average decrease of 1.4 MMbbl. PADD 4 stocks declined by 396 Mbbl to 2.4 MMbbl, which is 439 Mbbl (23%) higher than the 5-year average. PADD 5 inventories fell by 369 Mbbl to 1.7 MMbbl, which is 529 Mbbl, or 45%, above the 5-year average (2018-22).

INVENTORY OUTLOOK

U.S. propane inventories for February are projected to fall by 8.1 MMbbl, compared to an 8 MMbbl draw last year and the 5-year average decline of 8.9 MMbbl. This will leave total stocks at 50.1 MMbbl (2.1 Bgal), which is 10.5 MMbbl, or 17%, less than last year but 4.3 MMbbl, or 9%, above the 5-year average (2018-22). Total U.S. stocks are forecast to end the winter heating season at 47.2 MMbbl, which is 2.8 MMbbl above the 5-year average.

PROPANE MARKET UPDATE

U.S. PROPANE PRICES RALLY AS STRONG EXPORTS PULL INVENTORIES DOWN

West Texas Intermediate (WTI) crude oil prices remained rangebound during January, trading between \$70-\$75/bbl, as the market weighed the demand impacts of improved economic data out of the U.S. and China against supply concerns related to the Israel-Hamas war. WTI closed at \$73.31/bbl on February 6, up \$2.93/bbl, or 4.2%, from January 2. Mont Belvieu propane prices were sharply higher, driven by strong exports and robust stock draws. The OPIS non-TET (Enterprise) price was up 22.8 c/gal from the beginning of the month to 92.9 c/gal as of February 6, while OPIS TET (Energy Transfer) propane increased by 21 c/gal to 90.6 c/gal over the same period. As a result, the non-TET vs. TET price spread widened, with non-TET trading at a 2.3 c/gal premium on February 6. The January OPIS monthly average price was 81.8 c/gal for non-TET and 80.5 c/gal for TET, which was 12.9 c/gal and 13.1 c/gal above the December averages, respectively. Conway propane (OPIS) averaged 77.6 c/gal for the month, which represented a 4.2 c/gal discount to the average non-TET price. The Conway spread to Mont Belvieu has widened since with a 6.8 c/gal discount as of February 6.

The benchmark non-TET propane-to-WTI Cushing ratio (Figure 1.2) was at 51.1% as of January 31, up 9.3 percentage points from the beginning of the month. The ratio was at 53% as of February 6. The current forward curves project the propane-to-WTI ratio to average ~49% through April, which is 9 percentage points higher compared to the forward curves at the beginning of January. As shown in Figure 1.3, the forward curve for February (red line) is up ~15-20 c/gal in the short term (March-April) compared to the forward curve in January (yellow line).

Figure 1.2

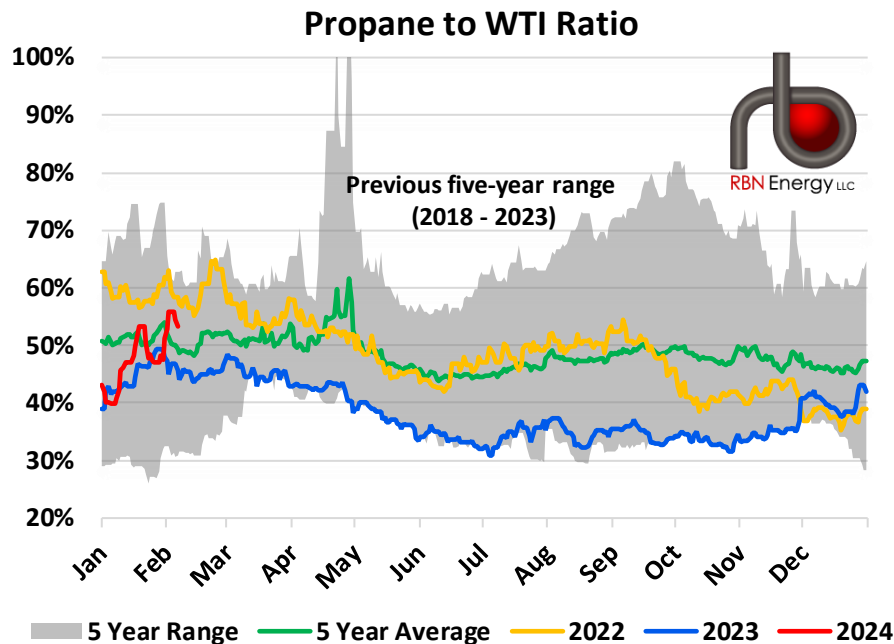
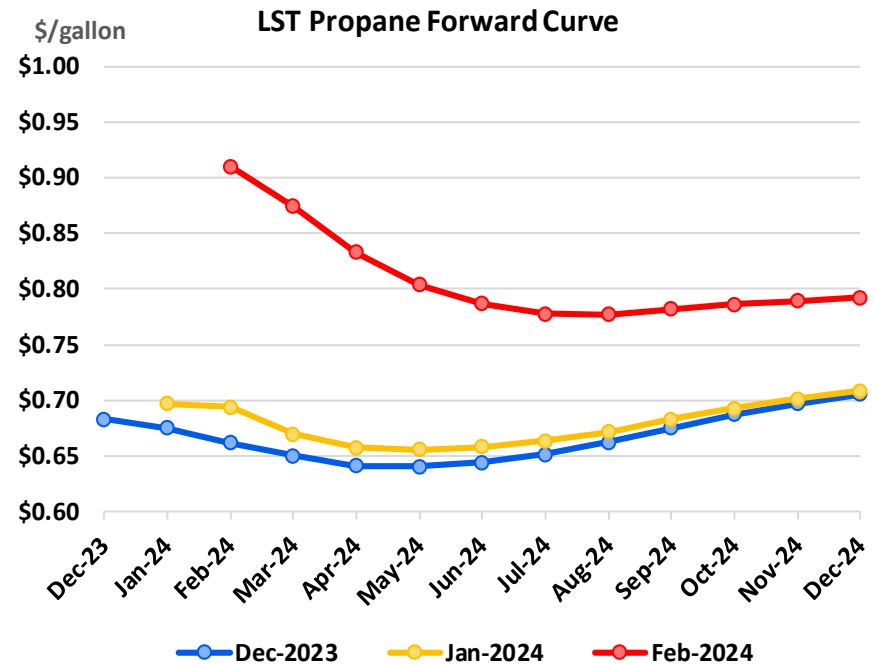


Figure 1.3



CONWAY VS. MONT BELVIEU PROPANE PRICES

CONWAY PRICE DISCOUNT TO MONT BELVIEU WIDENS

Conway spot propane's (OPIS) discount to Mont Belvieu Non-TET (Figure 2.5) averaged 4.2 c/gal during January, compared to a 3.8 c/gal discount in December and a 2.1 c/gal discount in November. In January 2023, Conway was at an average discount of 1.4 c/gal while in 2019 it was at a discount of 10.9 c/gal. The 5-year average (2019-23) Conway discount to Belvieu for January is 2.9 c/gal.

As of February 6, the Conway spot propane (OPIS) discount to Mont Belvieu Non-TET had increased to 6.8 c/gal, up from 5 c/gal on January 31.

CONWAY - BELVIEU PROPANE 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 or spread between the two prices 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 (export demand pull) or keep barrels in the Midwest for domestic demand.

The current forward curves are now projecting Mont Belvieu prices to trade ~3 c/gal above Conway for the remainder of the winter heating season (February – March), which is a signal of the strong export demand pull from the Gulf Coast.

For 2024, the forward curves expect Gulf Coast propane prices to trade at 2.1 c/gal above Conway through September but then flip to a small discount for October-December, with Mont Belvieu averaging 1.7 c/gal over Conway for the year compared to a 2.1 c/gal premium in 2023.

Figure 2.5

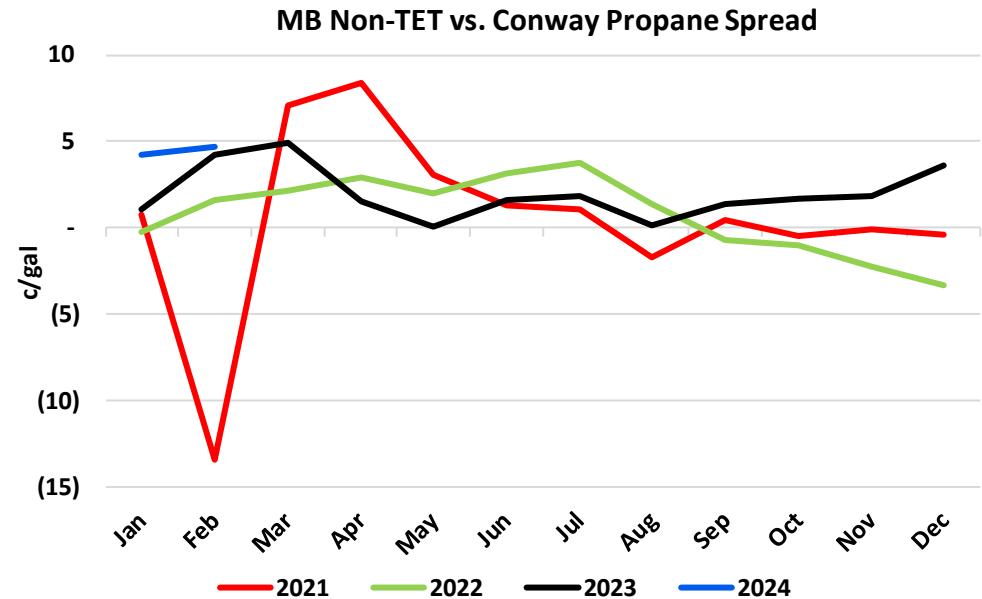
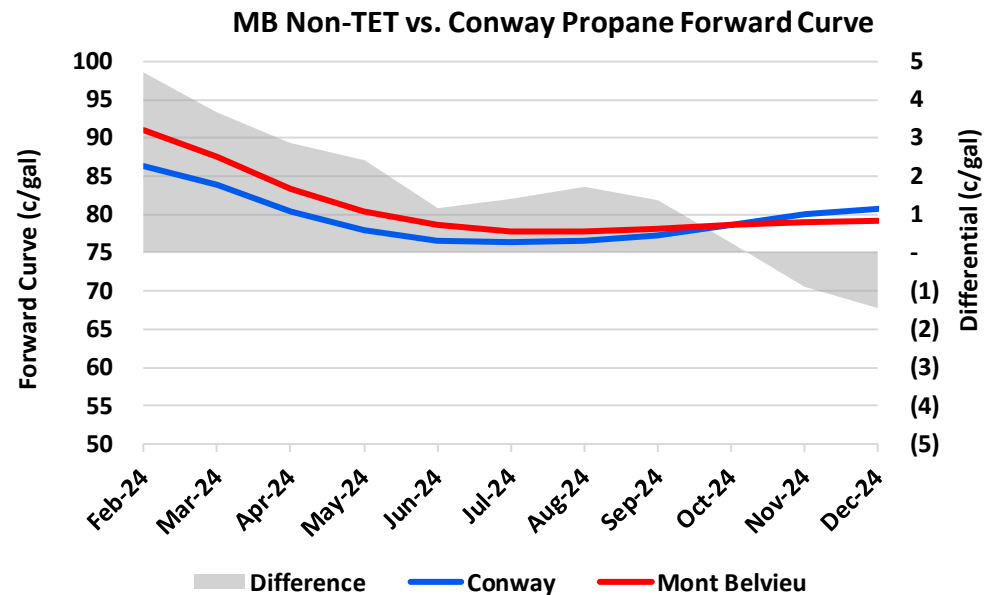


Figure 2.6



U.S. PROPANE DEMAND

Table C:	MM gal / month						M bbl / day					
	MONTHLY			ESTIMATED		FORECAST	MONTHLY			ESTIMATED		FORECAST
	Oct-23	Nov-23	M/M	Dec-23	Jan-24		Oct-23	Nov-23	M/M	Dec-23	Jan-24	
ResCom	468	580	112	741	901	741	360	461	101	569	692	609
Crop Drying	215	177	(38)	127	74	56	165	140	(25)	98	57	46
Industrial	90	94	3	122	129	109	69	74	5	94	99	89
Petrochemicals	229	250	21	269	241	217	176	198	22	207	185	178
PDH	91	88	(3)	98	104	110	70	70	-	75	80	90
Balancing	69	17	(52)	112	312	(150)	53	13	(40)	86	240	(124)
TOTAL PROPANE	1,163	1,206	43	1,469	1,761	1,082	893	957	64	1,128	1,353	888
Propylene	311	352	40	343	343	296	239	279	40	263	264	243
TOTAL DEMAND **	1,474	1,557	83	1,812	2,104	1,378	1,132	1,236	104	1,392	1,616	1,131
Weekly***	1,251	1,412	162	1,772	2,098		961	1,121	160	1,361	1,612	
Variance	(223)	(145)	78	(40)	(6)		(171)	(115)	56	(31)	(5)	

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

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

*** EIA monthly product supplied through Nov 2023, weekly through the week of February 2, 2024.

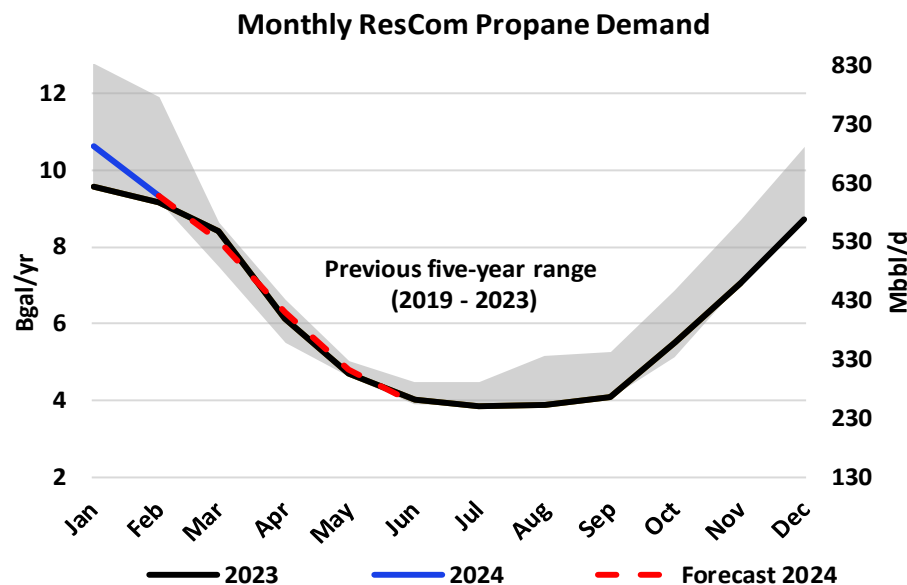
Figure 3.1

RESIDENTIAL & COMMERCIAL DEMAND INCREASES

Figure 3.1 shows our current forecast for Residential & Commercial (“ResCom”) demand through June. ResCom demand was stronger in January at 692 Mb/d (901 MMgal/m), 123 Mb/d above December and 90 Mb/d higher than January 2023. January in the U.S. was much colder than December and on par with the 10-year average (2014-23) but with 10% HDDs more than January 2023. For February, our weather forecast data shows 4% more HDDs in the U.S. compared with February 2023 and slightly below the 5-year average (2019-23) for the month. ResCom demand for February is projected at 609 Mb/d, down 83 Mb/d from January but 11 Mb/d higher than for the month last year.

PETROCHEMICAL DEMAND SLIGHTLY LOWER

Petchem demand for propane weakened in January to 185 Mb/d as higher prices pushed margins down for propane cracking. We expect Petchem demand for propane to remain weak in February as ethane remains the most economical feedstock. PDH demand increased to ~80 Mb/d as one of Enterprise’s units increased operating rates after restarting from a maintenance outage.



Source: RBN Estimate

U.S. PROPANE EXPORTS

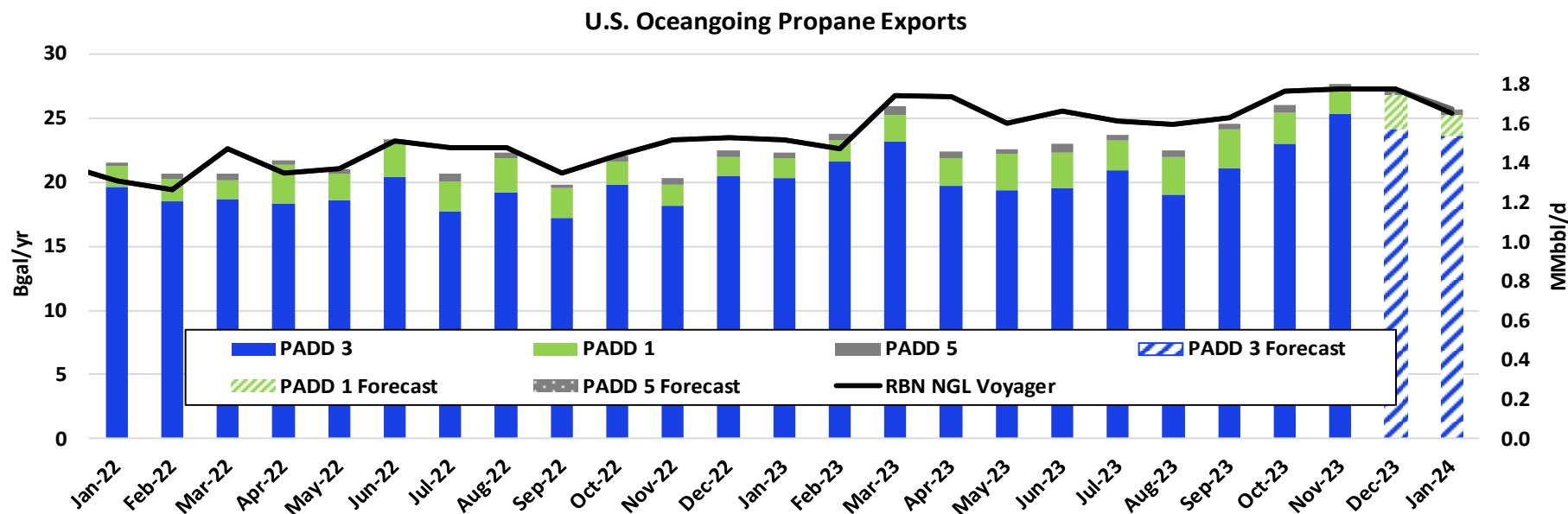
Table D: U.S. Propane Exports Monthly and Weekly*						
(Mbbbl/d)	MONTHLY EIA			ESTIMATED		FORECAST
	Oct-23	Nov-23	M/M	Dec-23	Jan-24	Feb-24
Gulf Coast	1,502	1,651	149	1,571	1,541	1,550
East Coast	156	132	(24)	174	108	125
West Coast	36	20	(16)	26	26	34
Other	2	3	1	3	4	4
TOTAL EXPORTS	1,696	1,806	110	1,774	1,679	1,713
Weekly	1,753	1,698	(55)	1,826	1,708	
Variance	57	(108)	(165)	52	29	

*Monthly data from EIA through November 2023, weekly through the week of February 2, 2024.
See [RBN's NGL Voyager Report](#) for additional details on propane exports.

EAST COAST EXPORTS SEASONALLY WEAK

East Coast propane exports (green bars in Figure 4.1) from Energy Transfer's Marcus Hook terminal in Pennsylvania declined sharply to 108 Mb/d in January, down 66 Mb/d from December. PADD 1 exports are expected to be slightly stronger in February at 125 Mb/d, which is 17 Mb/d higher than February 2023.

Figure 4.1



Source: EIA, RBN Forecast

East Coast volumes are expected to grow at a healthy rate in 2024, averaging 169 Mb/d, up 14 Mb/d, or 9%, from 2023. No propane cargoes were delivered into Blackline's Newington, NH, or Providence, RI, terminals during the month. Four cargoes have been imported into the region this winter heating season with one more possible during February.

GULF COAST PROPANE EXPORTS STAY STRONG

We estimate that Gulf Coast propane exports (blue bars in Figure 4.1) remained robust at 1,541 Mb/d in January, with operating rates close to LPG terminal capacity. We expect volumes in February to be relatively unchanged at 1,550 Mb/d. For 2024, exports are estimated to average 1,490 Mb/d, which is up 93 Mb/d, or 7%, from 2023.

WEST COAST EXPORTS UNCHANGED

Propane exports out of the West Coast were unchanged during the month at 26 Mb/d. We expect February shipments to strengthen to 34 Mb/d, which is 3 Mb/d above the 2023 average level. All West Coast exports are shipped to Asia (via the AltaGas Ferndale, WA, terminal) or to Mexico (via railcars/trucks).

INTERNATIONAL PROPANE

Figure 4.2

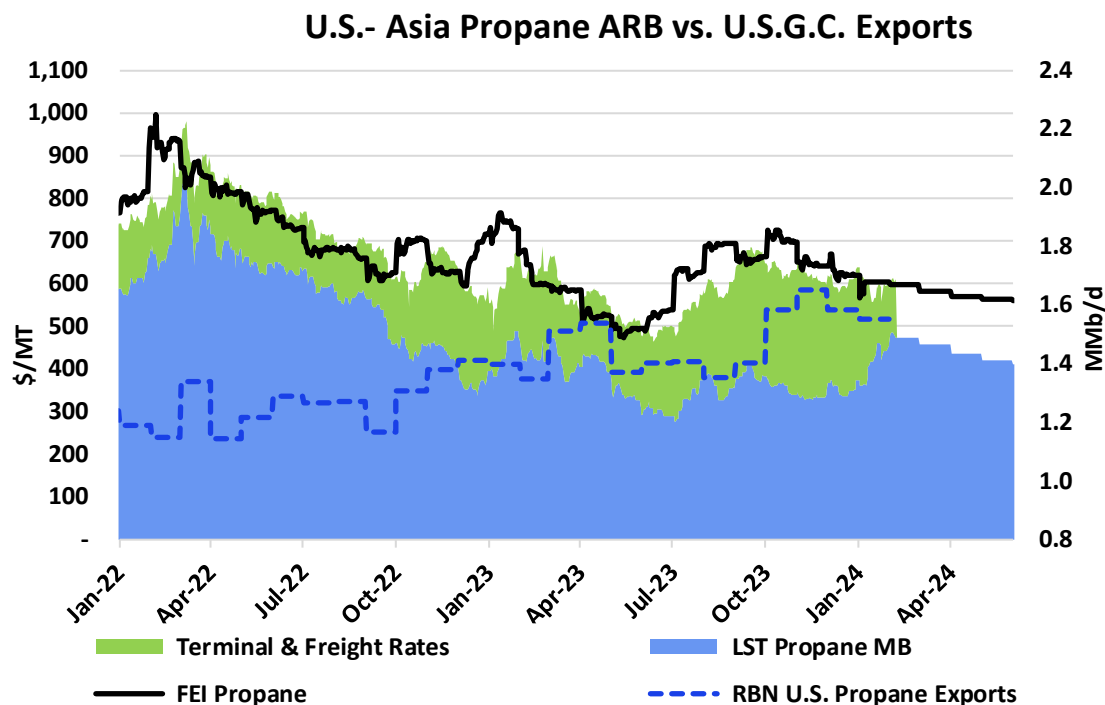
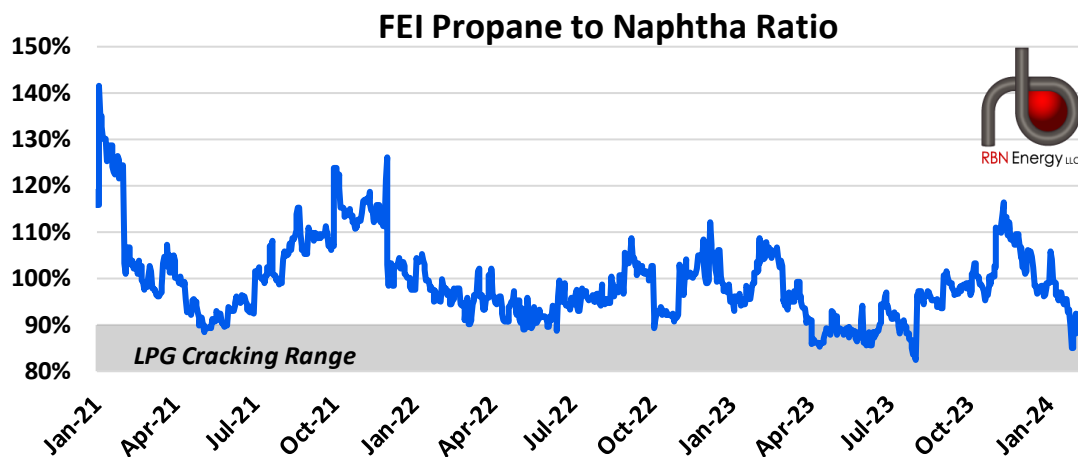


Figure 4.3



U.S.-ASIA PROPANE EXPORT ARB CLOSES

Saudi Aramco increased its February contract prices (CP) for propane by \$10/MT (1.9 c/gal) to \$630/MT (121 c/gal) while butane was increased to \$640/MT (141 c/gal), up \$10/MT (2.2 c/gal) from the January CP.

The VLGC freight market collapsed in December. Spot LPG freight rates from the U.S. Gulf Coast to Chiba, Japan, (via the Panama Canal) plunged by \$132/MT (25.1 c/gal) to \$92.5/MT as of February 6, which is 59% below the rate on January 2. Spot terminal fees (resale differentials) were modestly stronger over the period, as values increased by 0.5c/gal with an 8.5 c/gal fee for March loadings as of February 6.

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). Since January 2, the LST propane price at Mont Belvieu increased by \$112/MT to settle at \$472/MT, or 90.6 c/gal, on February 6, while the March FEI propane forward curve rose by \$30/MT, which narrowed the spread between U.S. and Asian prices to \$125/MT, or 23.9 c/gal, as of February 6. **Taking into consideration terminal fees and freight costs, the U.S.-Asia propane arb for February-March was closed at +12/MT (+2.3 c/gal).**

Figure 4.3 shows the ratio of the Asian FEI propane price to the naphtha price in the same region. As of February 6, the ratio stood at 92%, which implies that steam crackers in Asia will tend to favor propane feedstock over naphtha.

U.S. PROPANE PRODUCTION

Figure 5.1

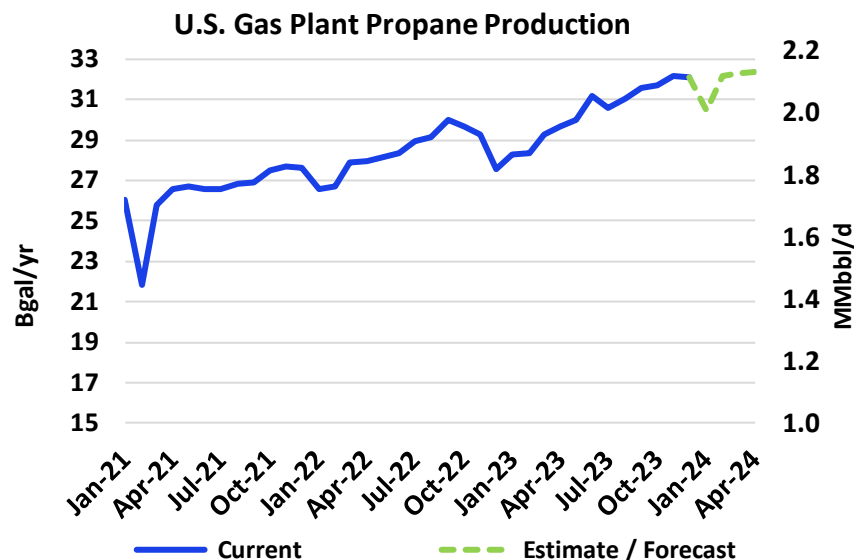
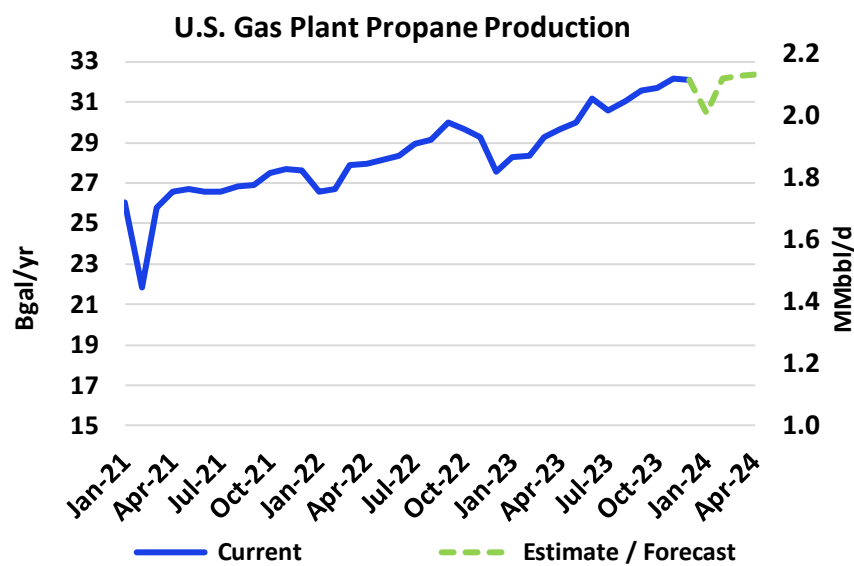


Figure 5.2



Source: EIA, RBN Forecast

Table E: U.S. Propane Production Monthly and Weekly*						
(Mbbbl/d)	MONTHLY EIA			ESTIMATED		FORECAST
	Oct-23	Nov-23	M/M	Dec-23	Jan-24	Feb-24
Gas Plant	2,088	2,119	31	2,117	2,007	2,119
Refinery	273	262	(11)	282	265	270
TOTAL PROPANE	2,361	2,381	20	2,399	2,272	2,389
Propylene	230	273	43	250	242	222
TOTAL PRODUCTION	2,591	2,654	63	2,649	2,514	2,612
Weekly**	2,603	2,609	6	2,630	2,478	
Variance	12	(45)	(57)	(18)	(36)	

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

** Monthly production from EIA through November 2023, weekly through the week of February 2, 2024.

GAS PLANT PRODUCTION HITS ANOTHER ALL-TIME HIGH

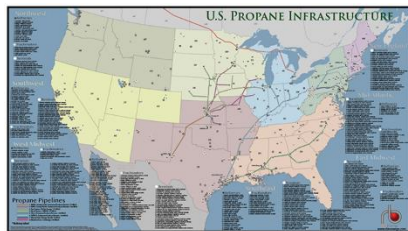
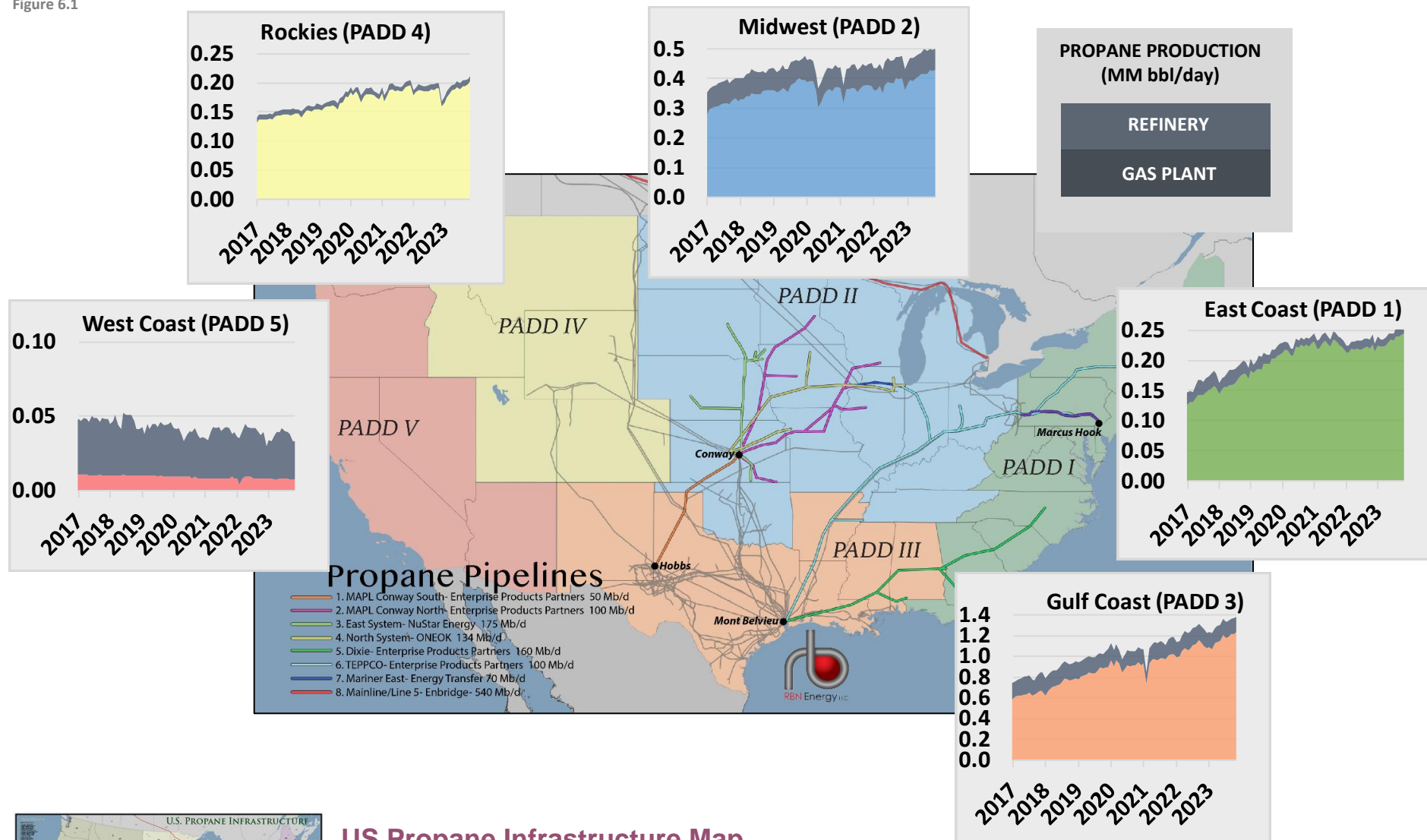
November propane gas plant production, as reported in the EIA Petroleum Supply Monthly on January 31, increased to a record-high 2,119 Mb/d, which represents year-on-year growth of 191 Mb/d, or 9.9%, from November 2022. We estimate that gas plant production declined sharply in January to 2,007 Mb/d due to weather-related curtailments. Based upon our production forecast model we estimate 2024 volumes at ~130 Mb/d above 2023. With Gulf Coast LPG export terminals already operating at capacity, increasing propane and butane production will need to find outlets other than exports to balance the market until the terminal expansion projects come online in mid-2025.

REFINERY PRODUCTION FALLS

Refinery propane production was weaker in January with volumes down by 17 Mb/d to 265 Mb/d as capacity utilization fell by 7 percentage points to 85%. We estimate that production in February will recover partially to 270 Mb/d as refinery operating rates drop to ~87%. For 2024, we forecast refinery propane production to average 276 Mb/d for the year, down 2 Mb/d from 2023, primarily due to slightly lower capacity utilization.

U.S. PROPANE INFRASTRUCTURE MAP

Figure 6.1



US Propane Infrastructure Map

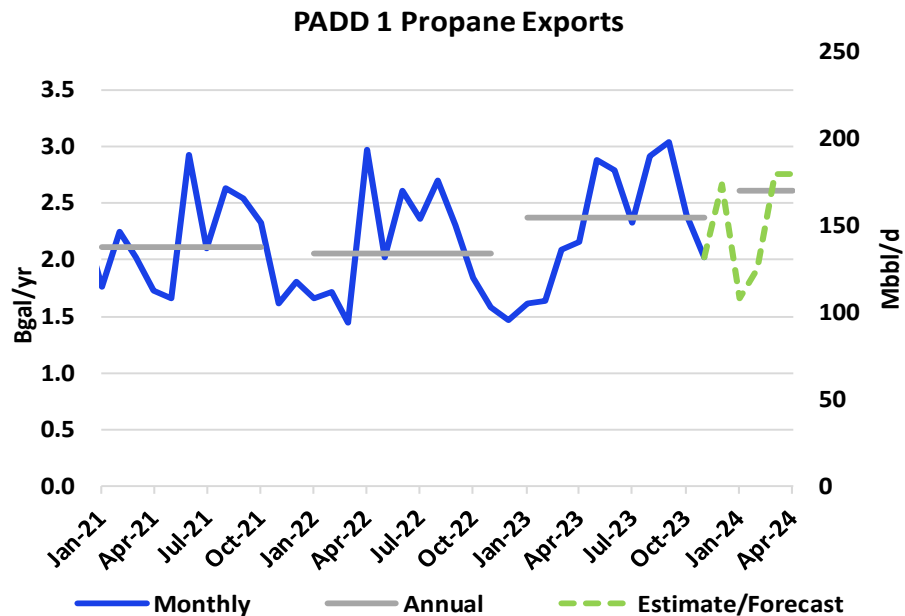
Click on the link above for RBN's U.S. Propane Infrastructure Map, which fits together all the pieces of an opaque and regionally fragmented propane market to reveal the extensive domestic propane network in a clear, concise map.

Note: RBN will be updating the Propane Infrastructure Map in March 2024. If you would like to order an updated RBN Propane Infrastructure Wall Map, please email tjbrazil@rbnenergy.com.

PADD 1: PROPANE SUPPLY & DEMAND

Table F:	MM gal / month							M bbl / day						
	EIA MONTHLY		ESTIMATED		FORECAST			EIA MONTHLY		ESTIMATED		FORECAST		
	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24
Production	329	325	332	333	309	332	323	253	258	255	256	254	255	256
Gas Plants	315	309	318	319	296	318	309	242	245	244	245	243	244	245
Refinery	14	16	14	13	13	14	14	11	13	11	10	11	11	11
Imports	27	53	49	48	60	38	13	21	42	37	37	50	30	10
Net Inter-PADD Transfers	279	222	280	301	262	264	230	214	176	215	231	215	203	183
TOTAL SUPPLY	635	600	661	682	631	634	566	488	476	508	524	518	487	449
Demand (Prod. Supplied)	408	404	515	597	559	414	333	313	321	396	458	459	318	264
Exports	203	166	227	141	152	234	227	156	132	174	108	125	180	180
Stock Change	25	29	(81)	(56)	(80)	(15)	6	19	23	(62)	(43)	(66)	(11)	5
TOTAL DISPOSITION	635	600	661	682	631	634	566	488	476	508	524	518	487	449
TOTAL INVENTORY	381	409	328	273	193	178	184	9,070	9,747	7,813	6,491	4,583	4,234	4,379

Figure 7.1



Source: EIA, RBN Forecast

INSIGHTS & ANALYSIS

PADD 1 (East Coast) had an above-average draw in stocks of 1.3 MMbbl for January, compared to the 1.8 MMbbl decline last year and the 5-year average drop of 1.2 MMbbl. This puts PADD 1 inventory at 6.5 MMbbl (273 MMgal), which is 1.1 MMbbl (16%) above January 2023 and 0.9 MMbbl (13.5%) higher than the 5-year average. Exports were weaker at 108 Mb/d, down 66 Mb/d from December and 47 Mb/d lower than the 2023 average. Exports are projected to average 153 Mb/d for 2024, an increase of 19 Mb/d from 2023. Gas plant production in the Northeast was little changed at 245 Mb/d.

PADD 1 OUTLOOK

Our propane model projects East Coast inventories will decline by 1.9 MMbbl in February to 4.6 MMbbl (193 MMgal), leaving stocks 0.4 MMbbl below last year and 0.3 Mbbl less than the 5-year average. As shown in Figure 7.1, East Coast exports are expected to remain seasonally weak in February to support local demand at 125 Mb/d, which is 30 Mb/d below the 2023 average but 17 Mb/d higher than January.

PADD 2: PROPANE SUPPLY & DEMAND

Table G:	MM gal / month							M bbl / day						
	EIA MONTHLY		ESTIMATED		FORECAST			EIA MONTHLY		ESTIMATED		FORECAST		
	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24
Production	647	629	652	570	608	648	631	497	499	501	438	499	498	501
Gas Plants	553	542	554	473	521	559	543	425	430	425	363	428	429	431
Refinery	94	87	99	97	86	90	89	72	69	76	75	71	69	70
Imports	40	49	41	39	49	51	38	31	39	32	30	41	40	30
Net Inter-PADD Transfers	(509)	(408)	(478)	(389)	(467)	(540)	(466)	(391)	(324)	(367)	(299)	(384)	(415)	(370)
TOTAL SUPPLY	178	270	215	219	190	160	203	137	214	165	169	156	123	161
Demand (Prod. Supplied)	214	338	375	446	354	217	113	164	268	288	342	291	167	90
Exports	3	4	4	5	5	7	6	2	3	3	4	4	5	5
Stock Change	(39)	(72)	(165)	(231)	(169)	(64)	84	(30)	(57)	(126)	(177)	(139)	(49)	66
TOTAL DISPOSITION	177	270	215	219	190	160	203	136	214	165	169	156	123	161
TOTAL INVENTORY	1,139	1,067	902	671	502	439	523	27,108	25,404	21,487	15,986	11,959	10,446	12,441

INSIGHTS & ANALYSIS

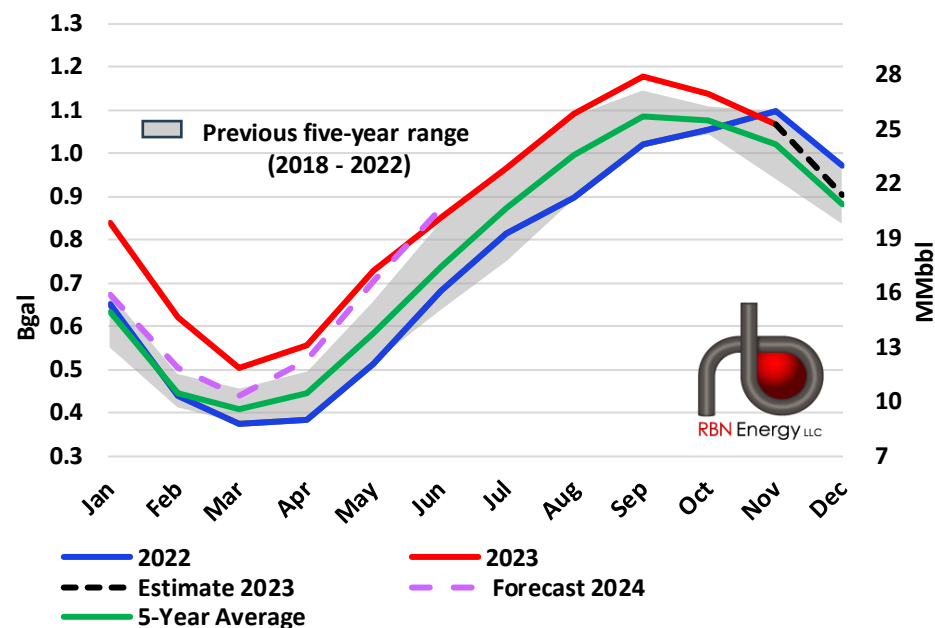
PADD 2 (Midwest) inventories fell by 5.5 MMbbl during January, which was well above the 3 MMbbl decline last year and the 5-year average draw of 3.3 MMbbl, leaving stocks at 16 MMbbl (671 MMgal). With the large draw, the Midwest market is now in a slightly worse supply position compared to last year with 1.5 MMbbl less in storage. Total production was sharply lower in January at 438 Mb/d due to weather-related curtailments in PADD 2. Imports were marginally lower at 30 Mb/d, which was 18 Mb/d less than last year and 13 Mb/d below the 2023 average. Canadian imports into the Midwest are projected to average 30 Mb/d in 2024, down 4 Mb/d from last year, primarily due to higher demand from Inter Pipeline's propane dehydrogenation (PDH) plant in Western Canada.

PADD 2 OUTLOOK

Midwest inventories are forecast to draw by 4 MMbbl in February compared to a 5-year average (2018-22) decline of 4.4 MMbbl, bringing ending inventories to 12 MMbbl (502 MMgal), 2.8 MMbbl lower than last year but 1.4 MMbbl above the 5-year average.

Figure 7.2

PADD 2 Monthly EIA Propane Inventories

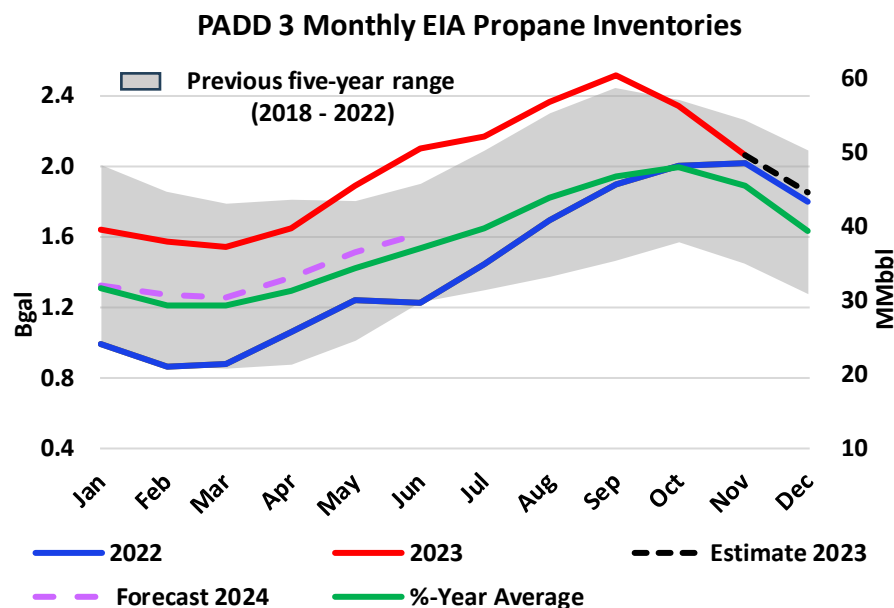


Source: EIA, RBN Forecast

PADD 3: PROPANE SUPPLY & DEMAND

Table H:	MM gal / month							M bbl / day						
	EIA MONTHLY		ESTIMATED		FORECAST			EIA MONTHLY		ESTIMATED		FORECAST		
	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24
Production	1,786	1,740	1,830	1,766	1,705	1,830	1,786	1,372	1,381	1,405	1,357	1,400	1,405	1,418
Gas Plants	1,583	1,556	1,622	1,577	1,519	1,630	1,584	1,216	1,235	1,246	1,211	1,247	1,252	1,257
Refinery	203	184	208	189	186	199	202	156	146	160	146	153	153	161
Imports	-	-	-	1	-	-	-	-	-	-	1	-	-	-
Net Inter-PADD Transfers	434	386	389	249	373	474	428	333	306	299	191	306	364	340
TOTAL SUPPLY	2,220	2,126	2,219	2,016	2,078	2,304	2,215	1,705	1,687	1,704	1,548	1,706	1,770	1,758
Demand (Prod. Supplied)	435	325	391	533	244	303	271	334	258	300	409	200	233	215
Exports	1,956	2,080	2,046	2,006	1,888	2,018	1,827	1,502	1,651	1,571	1,541	1,550	1,550	1,450
Stock Change	(169)	(280)	(217)	(523)	(54)	(17)	116	(130)	(222)	(167)	(402)	(44)	(13)	92
TOTAL DISPOSITION	2,221	2,126	2,219	2,016	2,078	2,304	2,215	1,706	1,687	1,704	1,548	1,706	1,770	1,758
TOTAL INVENTORY	2,346	2,066	1,849	1,326	1,272	1,255	1,372	55,855	49,191	44,018	31,567	30,289	29,885	32,658

Figure 7.3



Source: EIA, RBN Forecast

INSIGHTS & ANALYSIS

PADD 3 had a stock draw of 12.4 MMbbl for the month, which was significantly above the 5.2 MMbbl decline in January 2023 and the 6.1 MMbbl average drop for the month. This pulled Gulf Coast inventories down to 31.6 MMbbl (1.3 Bgal) at month's end, 3.8 MMbbl (8.8%) higher than last year and 7.8 MMbbl, or 20%, above the 5-year average. Propane exports from the Gulf Coast remained strong at 1,541 Mb/d, down 30 Mb/d from December but 181 Mb/d (14%) higher than in January 2023. PADD 3 gas plant production fell to 1,211 Mb/d in January, down 35 Mb/d from December, the previous record high.

PADD 3 OUTLOOK

February inventories are forecast to fall by 1.3 MMbbl, compared to the 1.6 MMbbl draw last year for the month and the 5-year average decline of 2.5 MMbbl. That would leave February ending stocks at 30.3 MMbbl (1.3 Bgal), which is 7.2 MMbbl (19%) less than last year but 1.6 MMbbl (5%) above the 5-year average (2018-22). Gulf Coast propane production is expected to increase in February to 1,247 Mb/d, recovering from the prior month's weather-related curtailments in the Permian Basin.

PADD 4: PROPANE SUPPLY & DEMAND

Table I:	MM gal / month							M bbl / day						
	EIA MONTHLY		ESTIMATED		FORECAST			EIA MONTHLY		ESTIMATED		FORECAST		
	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24
Production	268	265	263	241	245	262	254	206	210	202	185	201	201	202
Gas Plants	258	255	254	231	236	252	244	198	202	195	177	194	194	194
Refinery	10	10	10	10	9	10	10	8	8	7	8	8	8	8
Imports	17	18	17	17	16	18	16	13	14	13	13	13	14	13
Net Inter-PADD Transfers	(229)	(231)	(212)	(194)	(182)	(216)	(211)	(176)	(183)	(163)	(149)	(149)	(166)	(168)
TOTAL SUPPLY	56	52	68	63	79	64	59	43	41	52	49	65	49	46
Demand (Prod. Supplied)	53	53	85	80	93	73	53	41	42	65	61	76	56	42
Exports	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stock Change	3	(1)	(16)	(17)	(13)	(9)	6	2	(1)	(13)	(13)	(11)	(7)	4
TOTAL DISPOSITION	56	52	68	63	79	64	59	43	41	52	49	65	49	46
TOTAL INVENTORY	134	133	116	100	86	78	83	3,186	3,160	2,769	2,373	2,057	1,852	1,986

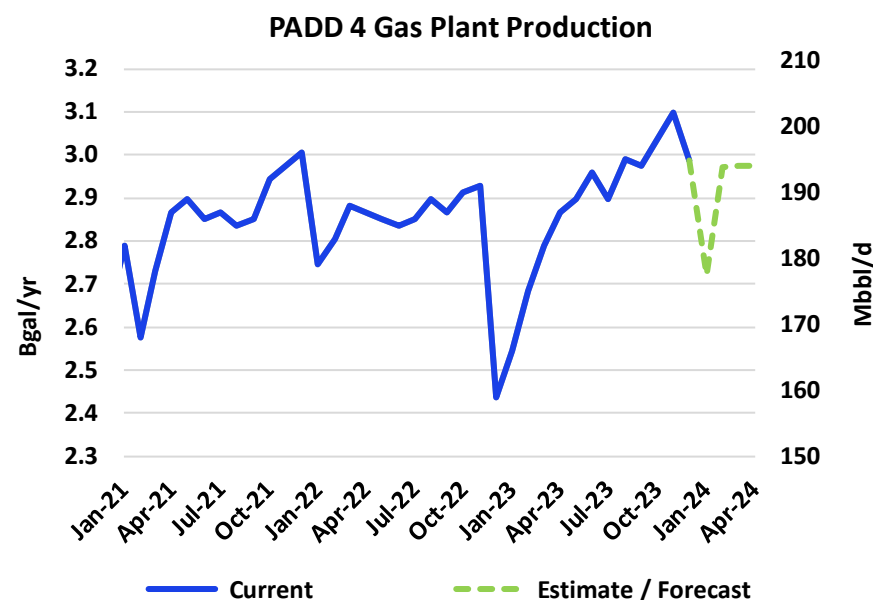
Figure 7.4

INSIGHTS & ANALYSIS

PADD 4 (Rocky Mountain) stocks declined by 396 Mbbl in January to 2.4 MMbbl (100 MMgal), which is 332 Mbbl (16%) higher than last year and 439 Mbbl (23%) above the 5-year average. Gas plant production declined sharply to 177 Mb/d (see Figure 7.4) due to cold-weather curtailments. Refinery production and imports were unchanged at 8 Mb/d and 13 Mb/d, respectively.

PADD 4 OUTLOOK

PADD 4 inventories are projected to draw by 316 Mbbl during February, leaving stocks at 2.1 MMbbl (86 MMgal), which is 130 Mbbl (7%) higher than February 2023 and 337 Mbbl (20%) above the 5-year average (2018-22) for the month. Rockies gas plant production is expected to recover from the weather-related curtailments last month to 194 Mb/d, up 17 Mb/d and 5 Mb/d above the 2023 average rate.

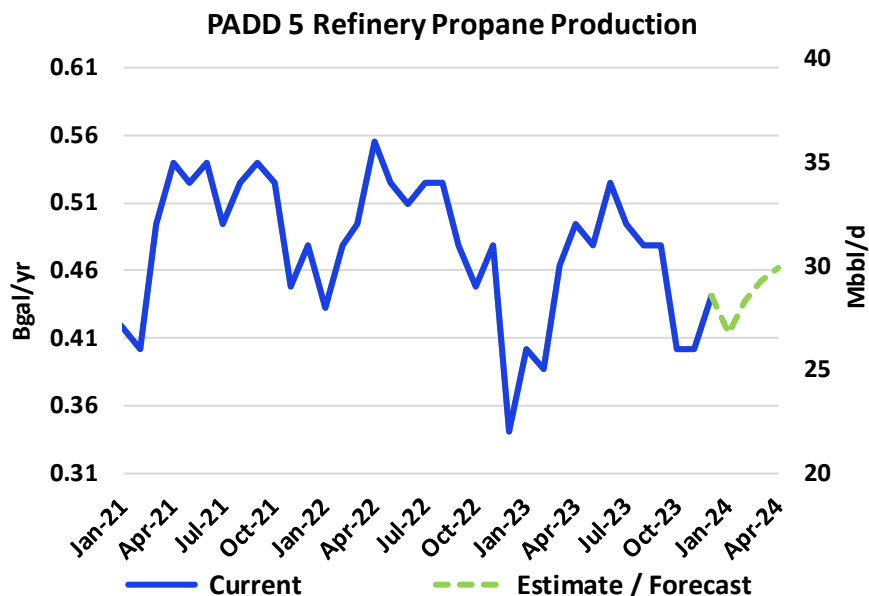


Source: EIA, RBN Forecast

PADD 5: PROPANE SUPPLY & DEMAND

Table J:	MM gal / month							M bbl / day						
	EIA MONTHLY		ESTIMATED		FORECAST			EIA MONTHLY		ESTIMATED		FORECAST		
	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24
Production	43	42	46	49	43	48	47	33	33	36	37	36	37	37
Gas Plants	9	9	9	14	9	9	9	7	7	7	11	7	7	7
Refinery	34	33	37	35	34	38	38	26	26	29	27	28	29	30
Imports	39	35	42	43	37	40	36	30	28	32	33	31	31	29
Net Inter-PADD Transfers	26	32	21	33	14	18	19	20	25	16	25	12	14	15
TOTAL SUPPLY	108	108	109	124	95	106	101	83	86	84	95	78	81	80
Demand (Prod. Supplied)	53	86	103	106	76	73	58	41	68	79	81	63	56	46
Exports	47	25	34	34	41	51	37	36	20	26	26	34	40	29
Stock Change	7	(4)	(27)	(16)	(22)	(18)	7	5	(3)	(21)	(12)	(18)	(14)	5
TOTAL DISPOSITION	107	107	109	124	95	106	101	82	85	84	95	78	81	80
TOTAL INVENTORY	117	114	87	71	49	31	38	2,794	2,715	2,064	1,695	1,172	732	894

Figure 7.5



Source: EIA, RBN Forecast

INSIGHTS & ANALYSIS

PADD 5 (West Coast) inventories declined by 369 Mbbl in January, ending at 1.7 MMbbl (71 MMgal). This leaves stocks 542 Mbbl (47%) higher than in January 2023 and 529 Mbbl (45%) above the 5-year average (2018-22). Refinery production weakened to 27 Mb/d as capacity utilization fell 5 percentage points to ~81%. West Coast exports were unchanged at 26 Mb/d and 7 Mb/d below imports, which increased to 33 Mb/d. For 2024, PADD 5 exports are estimated to average 31 Mb/d, unchanged from last year.

PADD 5 OUTLOOK

Our propane model projects West Coast inventories to decline by 523 Mbbl in February to 1.2 MMbbl (49 MMgal), leaving stocks 383 Mbbl (49%) above February 2023 and 387 Mbbl (49%) above the 5-year average (2018-22). As shown in Figure 7.5, refinery production in PADD 5 is expected to be relatively flat at 28 Mb/d this month as capacity utilization remains slightly above 80%. Imports are projected to be modestly lower at 31 Mb/d, which is 1 Mb/d above the 2023 average. February exports out of the region are forecast to strengthen to 34 Mb/d, up 8 Mb/d from last month and 3 Mb/d above the 2023 average rate.

KEY ENERGY PRICES

Table K:		Prices									
Product	Units	Current	Prior Week			Prior Month			Prior Year		
		1-Jan-24	25-Dec-23	W/W	W/W %	1-Dec-23	M/M	M/M %	1-Jan-23	Y/Y	Y/Y %
Brent Crude	\$/bbl	78.4	79.1	(0.7)	-0.9%	78.9	(0.5)	-0.6%	82.3	(3.9)	-4.7%
WTI Cushing Crude	\$/bbl	71.7	73.6	(1.9)	-2.6%	74.1	(2.4)	-3.3%	80.3	(8.6)	-10.7%
Henry Hub Natural Gas	\$/MMbtu	2.51	2.61	(0.10)	-3.7%	2.81	(0.30)	-10.7%	4.48	(1.96)	-43.8%
Propane											
Mont Belvieu Non-TET	c/gal	73.7	67.5	6.2	9.2%	71.8	1.9	2.6%	74.3	(0.6)	-0.9%
Mont Belvieu TET	c/gal	71.3	66.7	4.7	7.0%	70.5	0.8	1.2%	75.7	(4.4)	-5.8%
Conway	c/gal	71.9	63.8	8.1	12.7%	67.4	4.5	6.6%	77.3	(5.4)	-7.0%
Edmonton	c/gal	51.5	43.3	8.2	18.9%	50.0	1.5	3.0%	65.5	(14.0)	-21.4%
Sarnia	c/gal	91.1	87.0	4.1	4.7%	83.0	8.1	9.8%	98.0	(6.9)	-7.0%
European (ARA)	\$/MT	500.5	498.9	1.7	0.3%	493.7	6.8	1.4%	557.9	(57.4)	-10.3%
Saudi CP	\$/MT	629.8	612.6	17.2	2.8%	590.1	39.8	6.7%	586.8	43.0	7.3%

Figure 8.1

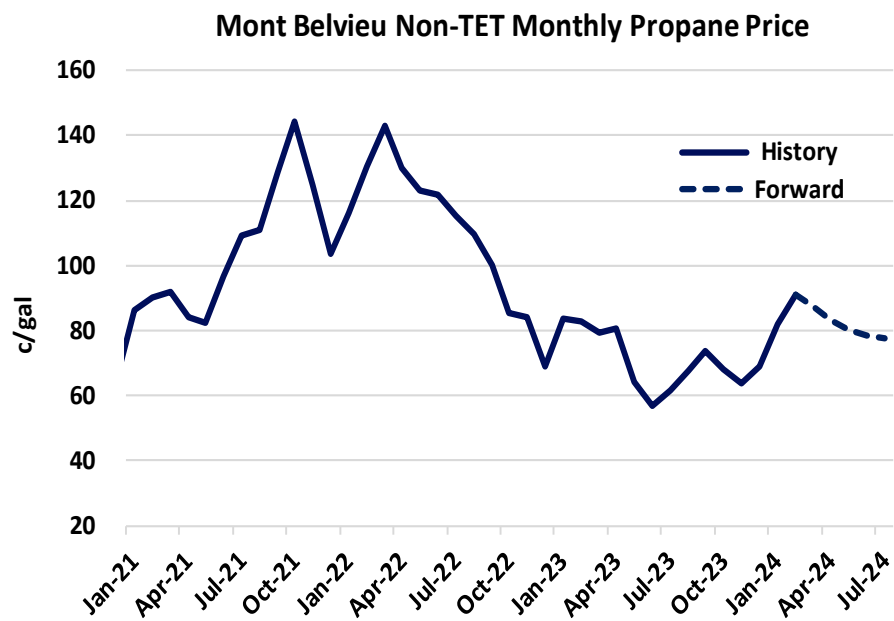
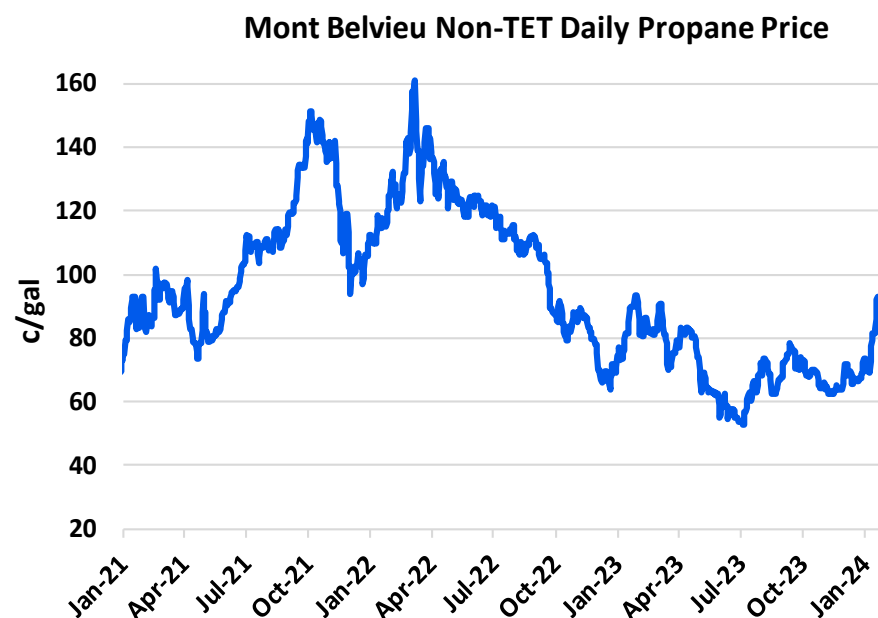


Figure 8.2



MONTHLY PROPANE PRICE TRENDS

Figure 8.3

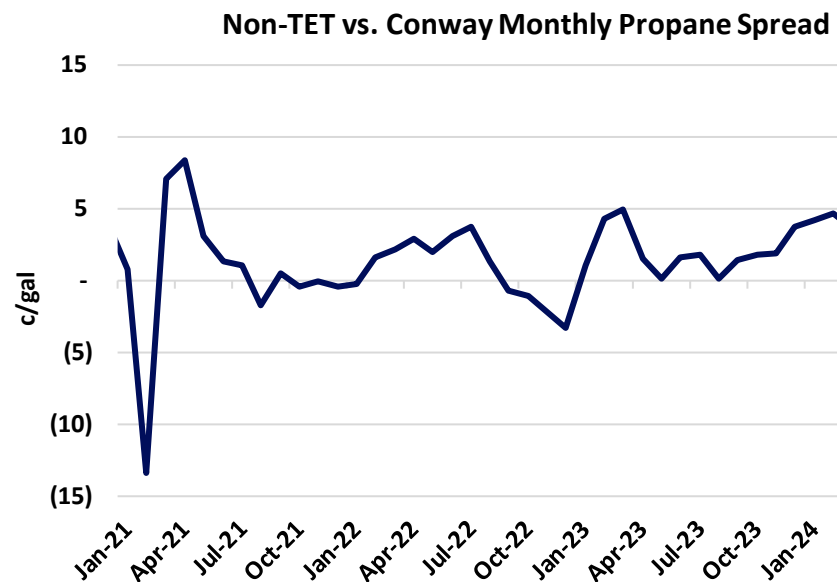


Figure 8.4

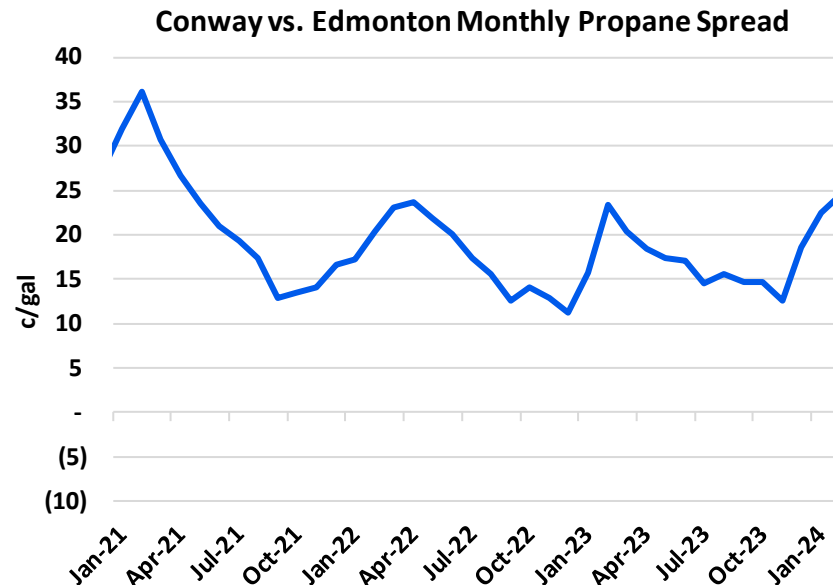


Figure 8.5

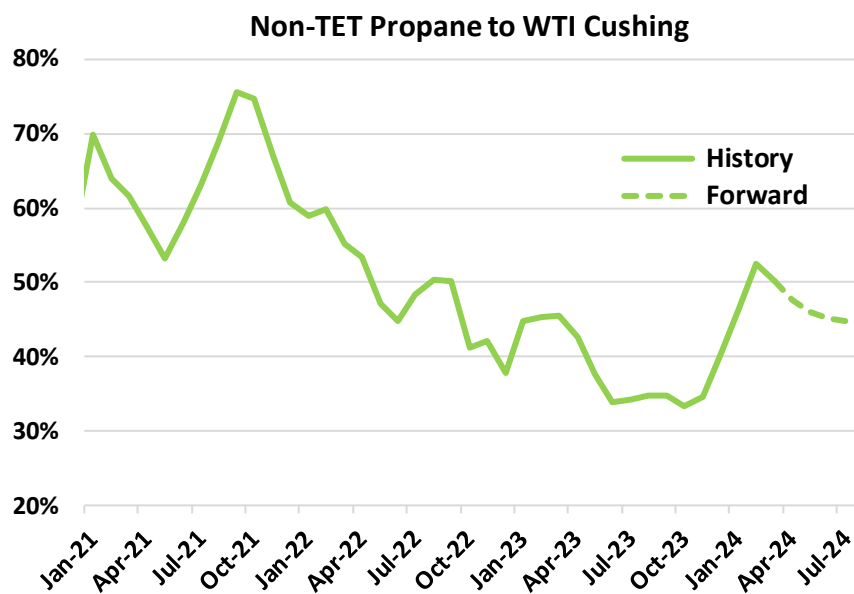


Table L: MB TET Propane / WTI Cushing					
%	2021	2022	2023	2024	Y/Y %
Nov	67.1%	42.5%	34.8%		
Dec	61.0%	38.2%	39.4%		
Jan	70.4%	59.2%	44.6%	45.3%	1.6%
Q1	65.8%	58.3%	45.0%	46.6%	3.7%
Q2	55.5%	48.8%	38.4%		
Q3	69.2%	49.5%	35.1%		
Q4	67.7%	40.8%	35.9%		
Year	64.6%	49.3%	38.6%	46.6%	21.0%

INTERNATIONAL PROPANE PRICE SPREADS

Figure 9.1

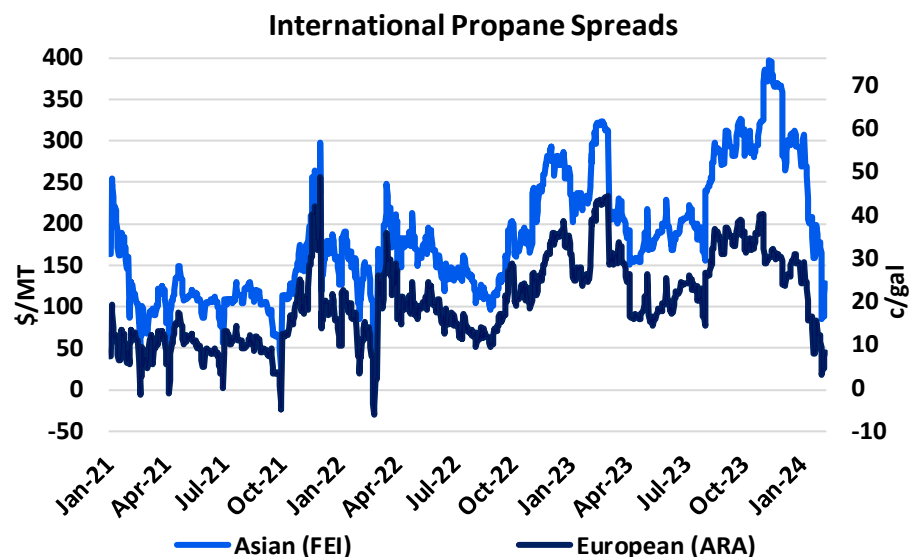


Figure 9.2

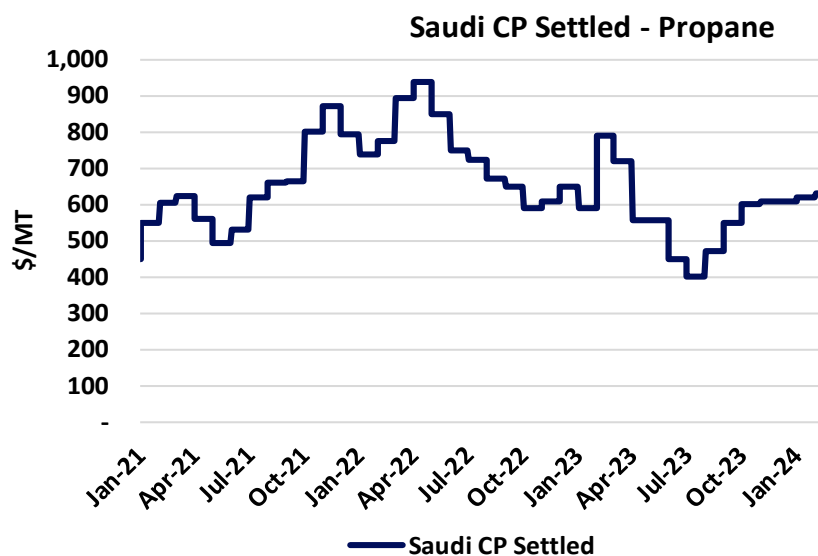


Table M: Asian FEI / MB TET Spread					
\$/MT	2021	2022	2023	2024	Y/Y %
Nov	203.9	252.3	374.6		
Dec	158.1	268.2	292.8		
Jan	186.5	154.3	228.9	209.7	-8.4%
Q1	129.5	151.5	247.9	191.7	-22.7%
Q2	106.1	163.8	181.5		
Q3	101.1	134.0	255.7		
Q4	163.6	232.5	322.4		
Year	125.1	170.6	252.1	191.7	-24.0%

Table N: European ARA / MB TET Spread					
\$/MT	2021	2022	2023	2024	Y/Y %
Nov	155.8	146.3	160.7		
Dec	90.5	183.1	143.6		
Jan	56.6	88.3	141.0	86.3	-38.8%
Q1	53.5	90.5	171.3	77.1	-55.0%
Q2	50.7	98.3	101.5		
Q3	48.3	79.3	156.8		
Q4	111.3	147.9	163.5		
Year	66.0	104.1	148.3	77.1	-48.0%

Table O: Saudi CP / MB TET Spread					
\$/MT	2021	2022	2023	2024	Y/Y %
Nov	170.0	186.3	318.2		
Dec	169.1	212.5	255.2		
Jan	142.7	143.6	230.7	178.7	-22.5%
Q1	118.4	136.5	216.9	166.4	-23.3%
Q2	74.8	135.3	142.9		
Q3	77.5	91.6	182.4		
Q4	144.3	178.4	289.2		
Year	103.7	135.4	208.0	166.4	-20.0%

U.S. PROPANE SUPPLY & DEMAND BALANCE DETAIL

Table P:	MM gal / month							M bbl / day						
	EIA MONTHLY		ESTIMATED		FORECAST			EIA MONTHLY		ESTIMATED		FORECAST		
	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24
Gas Processing	2,719	2,670	2,756	2,613	2,581	2,769	2,689	2,088	2,119	2,117	2,007	2,119	2,127	2,134
Refinery Propane	355	330	368	345	329	351	353	273	262	282	265	270	270	280
Imports	124	155	149	147	163	148	102	95	123	114	113	134	114	81
TOTAL SUPPLY	3,198	3,155	3,272	3,105	3,073	3,268	3,144	2,456	2,504	2,513	2,385	2,523	2,510	2,495
Product Supplied	1,163	1,206	1,469	1,761	1,325	1,080	828	893	957	1,128	1,353	1,088	829	657
ResCom	468	580	741	901	741	695	518	360	461	569	692	609	534	411
Crop Drying	215	177	127	74	56	39	39	165	140	98	57	46	30	31
Industrial	90	94	122	129	109	101	87	69	74	94	99	89	77	69
Petrochemicals	229	250	269	241	217	235	222	176	198	207	185	178	181	176
PDH	91	88	98	104	110	130	132	70	70	75	80	90	100	105
Balancing	69	17	112	312	93	(121)	(170)	53	13	86	240	76	(93)	(135)
Exports	2,208	2,276	2,310	2,185	2,086	2,311	2,097	1,696	1,806	1,774	1,679	1,713	1,775	1,664
Stock Change	(174)	(328)	(507)	(842)	(338)	(122)	219	(134)	(260)	(389)	(646)	(278)	(94)	174
TOTAL DISPOSITION	3,196	3,154	3,272	3,105	3,073	3,268	3,144	2,455	2,503	2,513	2,385	2,523	2,510	2,495
TOTAL INVENTORY	4,117	3,789	3,282	2,441	2,103	1,980	2,199	98,013	90,217	78,150	58,111	50,060	47,150	52,358
Last Year Inventory	3,642	3,682	3,219	2,882	2,545	2,344	2,551	86,724	87,672	76,642	68,612	60,588	55,812	60,734
Stock M/M Δ	(174)	(328)	(507)	(842)	(338)	(122)	219	(4,154)	(7,800)	(12,067)	(20,039)	(8,051)	(2,910)	5,207
Last Year Stock M/M Δ	201	39	(464)	(335)	(348)	(201)	208	4,774	930	(11,036)	(7,967)	(8,294)	(4,774)	4,950

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

PADD AVERAGE HEATING DEGREE DAYS (HDDs)

Figure 10.1

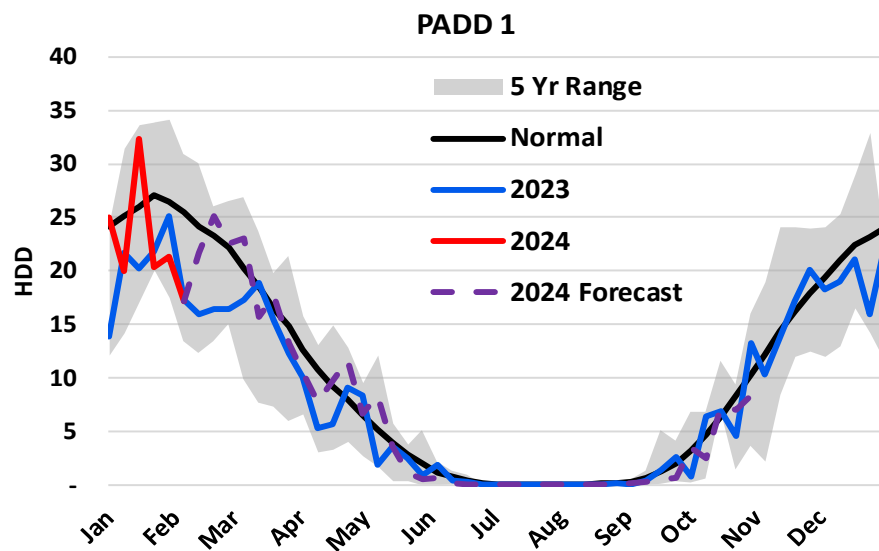


Figure 10.2

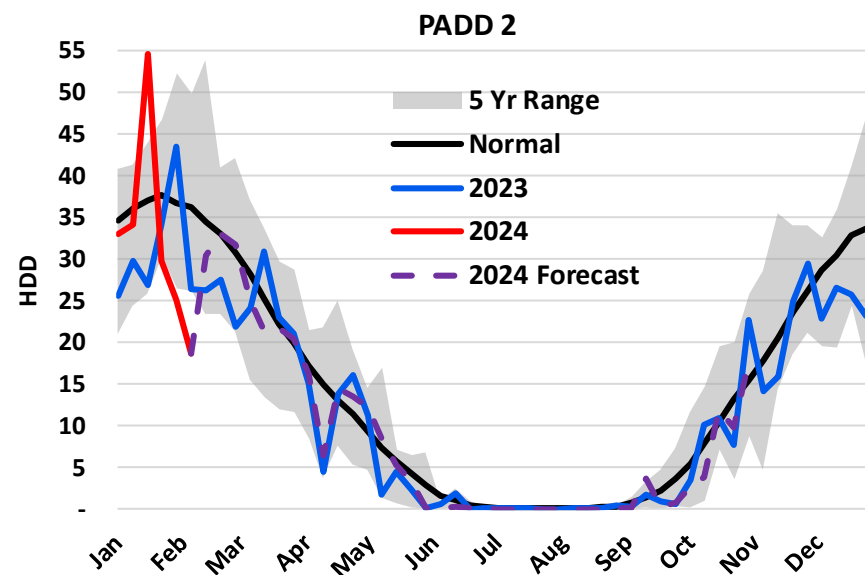


Figure 10.3

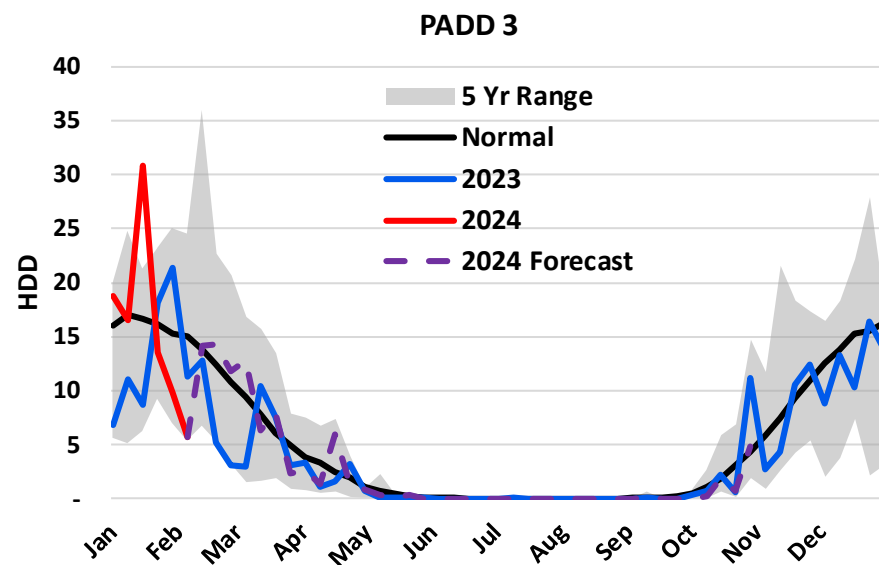


Figure 10.4

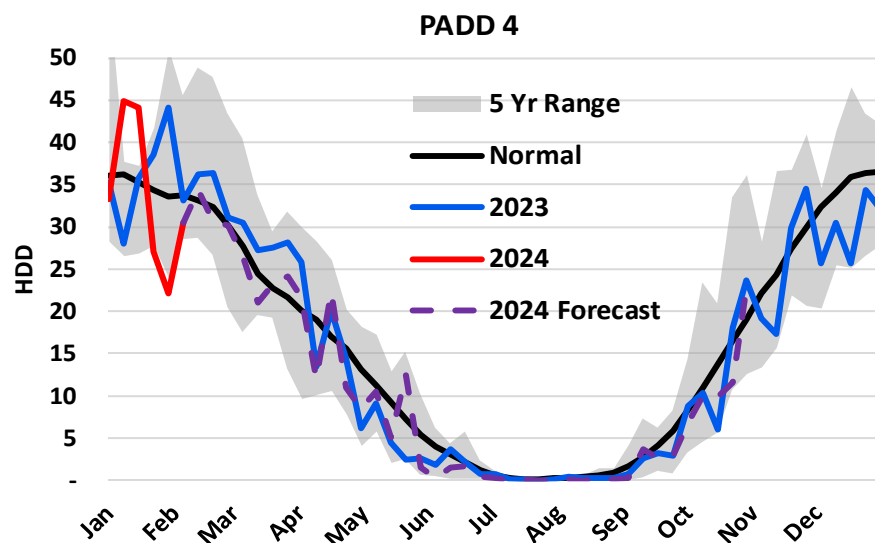
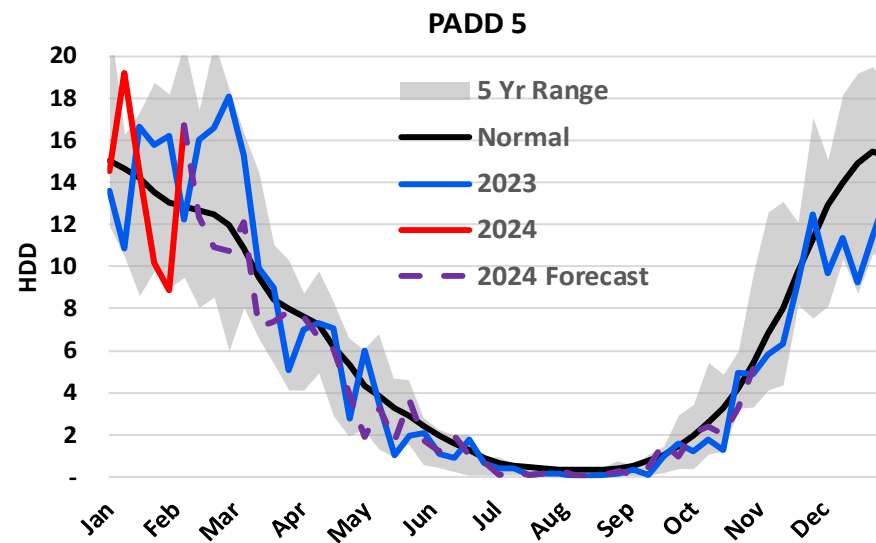


Figure 10.5



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