

Oil futures had a choppy Thursday and whatever happens tomorrow, the big winners this week appear to be the exchanges, thanks to very brisk volumes.

February WTI lost 5cts bbl and settled at \$59.56/bbl. Expect to see quite a bit of conversation about whether the top of the eventual 2020 market was seen when prompt WTI fetched \$65.65/bbl just a couple of days ago. Similarly, Brent calmed down with late day quotes at \$65.37/bbl almost \$6.50/bbl below the weekly high. NGL prices were mixed at Mont Belvieu with TET propane rising versus non-TET and end-of-day averages closing at 45.375cts/gal and 42.75cts/gal, respectively. TET has been carrying a 2cts-plus premium to non-TET since the start of the month, due in part to seasonal tendencies.

Conway propane was last seen trading at a 4.5cts/gal discount to TET (Jan. 8). The last time it commanded a premium (0.25ct) was on November 11, amid a mix of crop drying demand and colder weather.

Ethylene was lower today. Jan traded down to 18.5 cpp (54.9 cpg equivalent). Forward markets fell in line with Jan. Feb ethylene was 18.375 cpp (54.6 cpg), 1Q was 18.25 cpp (54.2 cpg) and calendar 2020 was 17.75 cpp (52.7 cpg).

Ethane remained the cheapest feedstock relative to spot pricing with its cash costs still below 10 cpp. Propane was also attractive, at slightly above 10 cpp, but its contango shape made it a less profitable feedstock later in the 2020 market. Butane was still an unprofitable feedstock in near-term months, still at nearly 20 cpp, but it's become more attractive starting in the 2Q 2020 market.

Propylene was lower as Jan traded down to 30.75 cpp (133.8 cpg). Forward markets were also lower. Feb propylene was 31 cpp (134.9 cpg), 1Q also was also 31 cpp (134.9 cpg) and calendar 2020 propylene was 35 cpp (139.2 cpg).

#### OPIS-PCW spreads:

Cents per pound/Cents per gallon

#### Ethylene-Ethane

Jan 13.11 / 38.95

Feb 12.78 / 37.95

1Q 12.78 / 37.95

#### Polyethylene-Ethane

Jan 27.11 / 80.53

Feb 26.90 / 79.90

1Q 27.03 / 80.28

#### Propylene-Propane

Jan 20.84 / 90.64

Feb 20.22 / 87.98

1Q 21.02 / 91.43

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### NYMEX at Settlement

MONTH	WTI CRUDE \$/bbl		NATURAL GAS \$/mmbtu	
	PRICE	CHANGE	PRICE	CHANGE
Feb 20	59.56	-0.05	2.166	0.025
Mar 20	59.44	-0.02	2.148	0.014
Apr 20	59.25	0.02	2.150	0.015
May 20	58.99	0.07	2.191	0.014
Jun 20	58.63	0.11	2.250	0.012
Jul 20	58.19	0.14	2.309	0.010
Aug 20	57.70	0.16	2.325	0.008
Sep 20	57.20	0.16	2.315	0.007
Oct 20	56.74	0.17	2.345	0.008
Nov 20	56.32	0.17	2.426	0.004
Dec 20	55.93	0.18	2.606	-0.001
Jan 21	55.54	0.19	2.716	0.001
Feb 21	55.19	0.20	2.673	0.003
Mar 21	54.87	0.22	2.559	0.010
Apr 21	54.58	0.24	2.306	0.008
May 21	54.33	0.26	2.277	0.006
Jun 21	54.10	0.27	2.306	0.006
Jul 21	53.85	0.28	2.339	0.005
Aug 21	53.62	0.29	2.345	0.006
Sep 21	53.42	0.30	2.333	0.007
Oct 21	53.25	0.31	2.357	0.006

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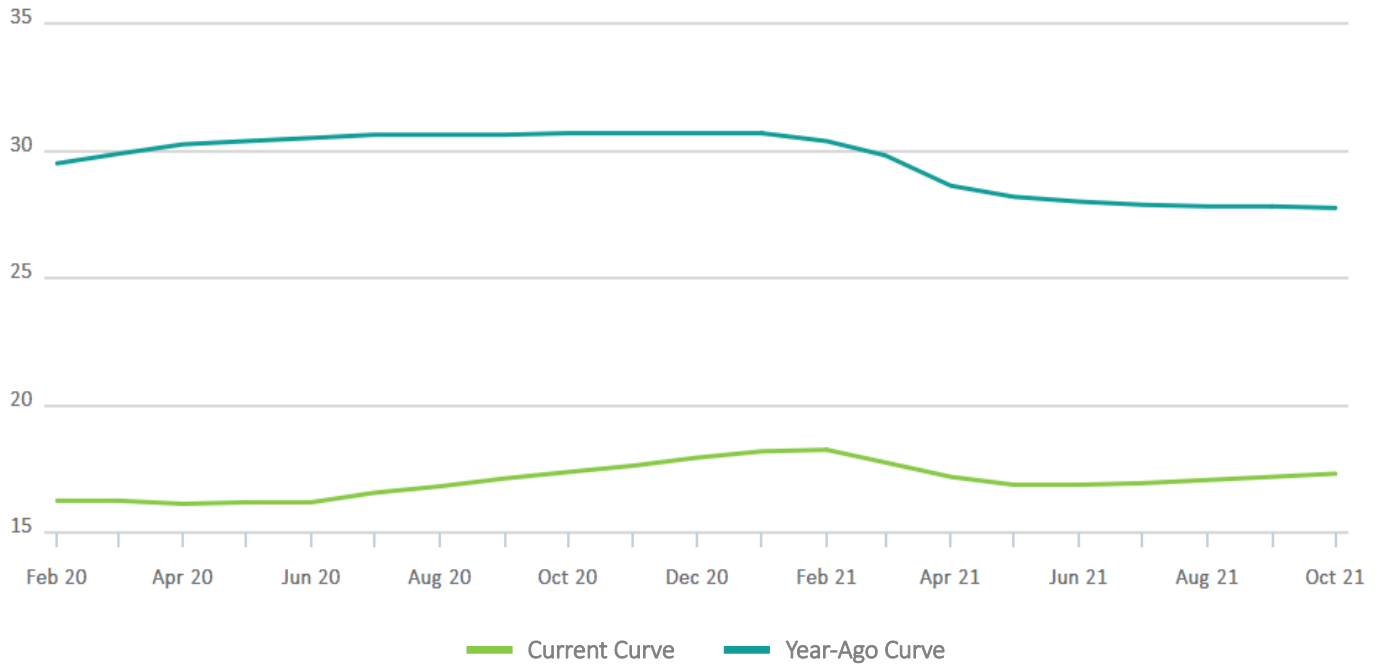
## ETHANE C2 (MONT BELVIEU) cts/gal

OPIS 14:30 ET SNAPSHOT: 16.000

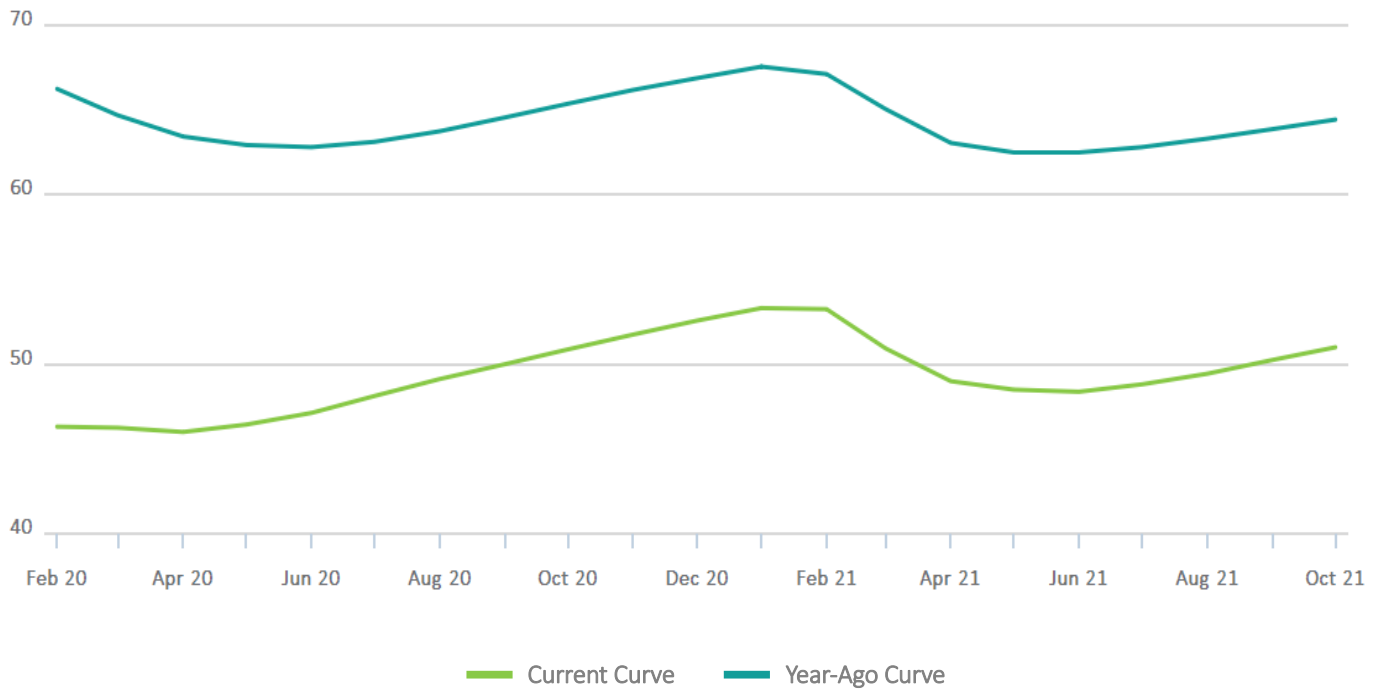
FORWARD MONTH	LOW ASSESSMENT	HIGH ASSESSMENT	AVG PRICE	NET CHANGE	FRAC SPREAD	% OF CRUDE
Feb 20	16.125	16.375	16.2500	-0.2500	1.8808	11.47
Mar 20	16.125	16.375	16.2500	-0.1250	2.0002	11.49
Apr 20	16.000	16.250	16.1250	-0.3125	1.8619	11.45
May 20	16.000	16.375	16.1875	-0.3125	1.6524	11.55
Jun 20	16.000	16.375	16.1875	-0.3125	1.2610	11.63
Jul 20	16.375	16.750	16.5625	-0.3125	1.2446	11.99
Aug 20	16.625	17.000	16.8125	-0.2500	1.3884	12.27
Sep 20	16.875	17.375	17.1250	-0.1875	1.7673	12.61
Oct 20	17.125	17.625	17.3750	-0.2500	1.8183	12.89
Nov 20	17.375	17.875	17.6250	-0.3125	1.5309	13.17
Dec 20	17.750	18.125	17.9375	-0.2500	0.6493	13.50
Jan 21	18.000	18.375	18.1875	-0.2500	0.1696	13.78
Feb 21	18.000	18.500	18.2500	-0.2500	0.5173	13.92
Mar 21	17.500	18.000	17.7500	-0.3750	0.7736	13.61
Apr 21	16.875	17.500	17.1875	-0.4375	1.8895	13.25
May 21	16.500	17.250	16.8750	-0.5000	1.7694	13.06
Jun 21	16.500	17.250	16.8750	-0.5000	1.5770	13.12
Jul 21	16.625	17.250	16.9375	-0.5000	1.4206	13.23
Aug 21	16.750	17.375	17.0625	-0.4375	1.5058	13.38
Sep 21	16.875	17.500	17.1875	-0.3750	1.7104	13.53
Oct 21	17.000	17.625	17.3125	-0.3750	1.6762	13.67
2Q 2020	16.125	16.375	16.2500	-0.4375	1.5918	11.54
3Q 2020	16.625	17.000	16.8125	-0.4375	1.4668	12.29
4Q 2020	17.500	17.875	17.6875	-0.2500	1.3328	13.19
1Q 2021	17.875	18.250	18.0625	-0.3125	0.4868	13.77
2Q 2021	16.875	17.375	17.1250	-0.3125	1.7453	13.14
3Q 2021	17.000	17.375	17.1875	-0.3125	1.5456	13.38
4Q 2021	17.125	17.750	17.4375	-0.1875	1.6762	13.67
CAL 2021	17.250	17.625	17.4375	-0.3125	1.4160	12.73

## 21-Month Forward Curves

### ETHANE C2 (MONT BELVIEU) cts/gal



### PROPANE C3 (MONT BELVIEU TET) cts/gal



## PROPANE C3 (MONT BELVIEU TET) cts/gal

OPIS 14:30 ET SNAPSHOT: 46.000

FORWARD MONTH	LOW ASSESSMENT	HIGH ASSESSMENT	AVG PRICE	NET CHANGE	FRAC SPREAD	% OF CRUDE
Feb 20	46.250	46.375	46.3125	1.2500	26.4800	32.68
Mar 20	46.125	46.375	46.2500	1.5000	26.5823	32.71
Apr 20	45.875	46.125	46.0000	1.5625	26.3140	32.66
May 20	46.250	46.625	46.4375	1.6875	26.3760	33.13
Jun 20	46.750	47.500	47.1250	1.7500	26.5233	33.84
Jul 20	47.875	48.375	48.1250	1.8125	26.9831	34.83
Aug 20	48.875	49.375	49.1250	1.9375	27.8366	35.86
Sep 20	49.750	50.250	50.0000	2.0000	28.8032	36.81
Oct 20	50.625	51.125	50.8750	2.0625	29.4035	37.75
Nov 20	51.500	52.000	51.7500	2.0625	29.5368	38.68
Dec 20	52.375	52.750	52.5625	2.0625	28.7012	39.56
Jan 21	53.000	53.625	53.3125	2.0625	28.4440	40.40
Feb 21	53.000	53.500	53.2500	2.0000	28.7752	40.60
Mar 21	50.625	51.250	50.9375	1.8125	27.5065	39.06
Apr 21	48.250	49.750	49.0000	1.6875	27.8856	37.76
May 21	48.000	49.000	48.5000	1.8750	27.6511	37.55
Jun 21	48.125	48.625	48.3750	1.8125	27.2606	37.61
Jul 21	48.500	49.125	48.8125	1.7500	27.3959	38.13
Aug 21	49.000	49.875	49.4375	1.7500	27.9660	38.77
Sep 21	49.750	50.750	50.2500	1.8125	28.8884	39.55
Oct 21	50.500	51.500	51.0000	1.8125	29.4186	40.27
2Q 2020	46.375	46.750	46.5625	1.6875	26.4044	33.21
3Q 2020	48.875	49.375	49.1250	1.9375	27.8743	35.84
4Q 2020	51.500	52.000	51.7500	2.0625	29.2138	38.67
1Q 2021	52.250	52.625	52.4375	1.9375	28.2419	40.02
2Q 2021	48.125	49.125	48.6250	1.8125	27.5991	37.64
3Q 2021	49.125	49.875	49.5000	1.7500	28.0834	38.82
4Q 2021	50.875	52.250	51.5625	1.7500	29.4186	40.27
CAL 2021	50.375	50.875	50.6250	1.8125	27.7524	36.86

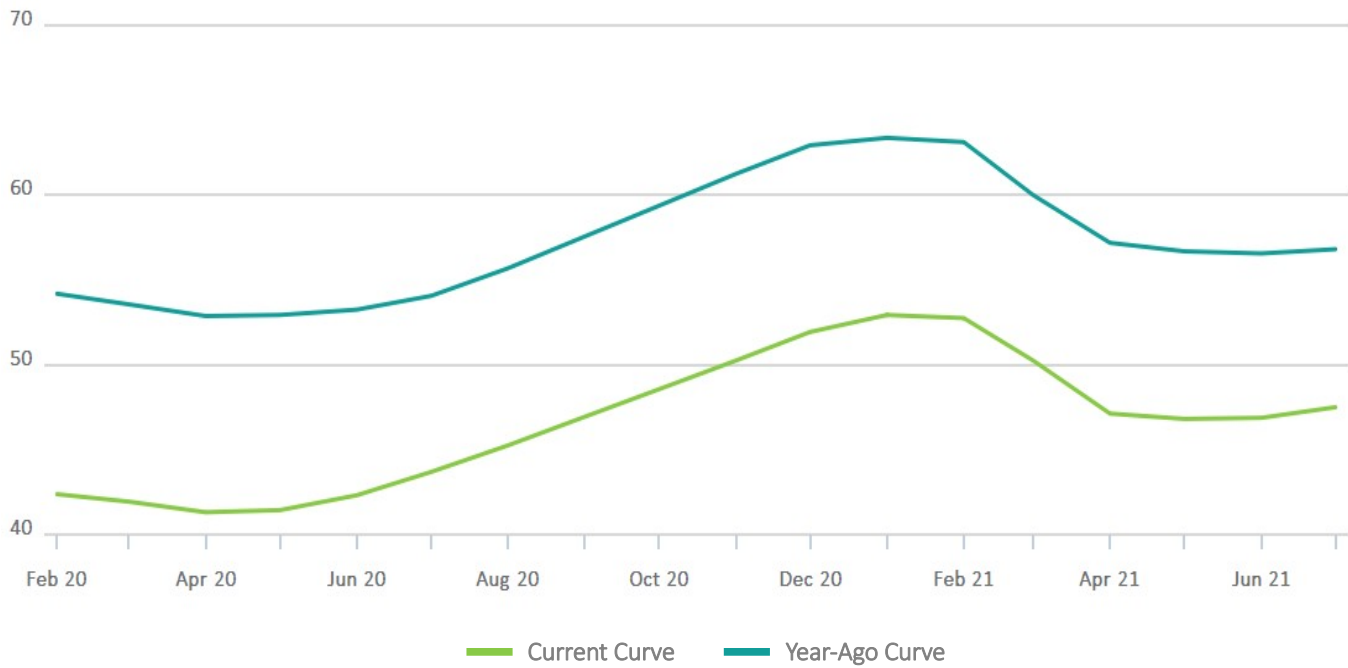
## PROPANE C3 (CONWAY IN-WELL) cts/gal

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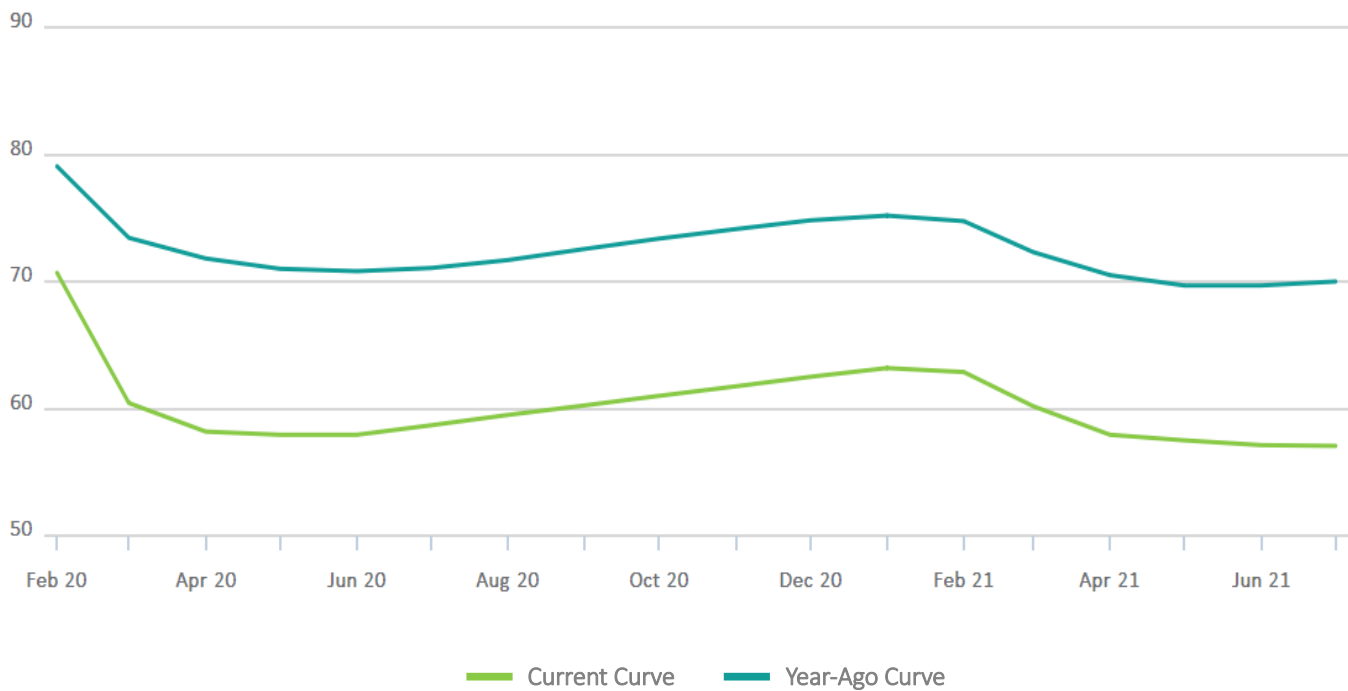
FORWARD MONTH	LOW ASSESSMENT	HIGH ASSESSMENT	AVG PRICE	NET CHANGE	FRAC SPREAD	% OF CRUDE
Feb 20	42.000	42.750	42.3750	2.0000	22.5425	29.90
Mar 20	41.625	42.250	41.9375	1.8750	22.2698	29.66
Apr 20	40.875	41.750	41.3125	1.8750	21.6265	29.33
May 20	41.000	41.875	41.4375	1.8750	21.3760	29.56
Jun 20	41.750	42.875	42.3125	1.9375	21.7108	30.39
Jul 20	43.250	44.125	43.6875	1.9375	22.5456	31.62
Aug 20	45.000	45.500	45.2500	1.9375	23.9616	33.03
Sep 20	46.750	47.125	46.9375	1.4375	25.7407	34.56
Oct 20	48.250	48.875	48.5625	2.1875	27.0910	36.04
Nov 20	49.875	50.625	50.2500	2.3125	28.0368	37.56
Dec 20	51.500	52.375	51.9375	2.3125	28.0762	39.09
Jan 21	52.000	53.875	52.9375	2.3750	28.0690	40.12
Feb 21	52.000	53.500	52.7500	2.3750	28.2752	40.22
Mar 21	48.250	52.250	50.2500	2.5625	26.8190	38.53
Apr 21	45.000	49.250	47.1250	1.8125	26.0106	36.32
May 21	45.000	48.625	46.8125	1.6875	25.9636	36.24
Jun 21	45.125	48.625	46.8750	1.5625	25.7606	36.45
Jul 21	46.000	49.000	47.5000	1.3125	26.0834	37.10
2Q 2020	41.250	42.125	41.6875	1.8750	21.5711	29.76
3Q 2020	45.000	45.625	45.3125	1.9375	24.0826	33.07
4Q 2020	50.125	50.625	50.3750	2.4375	27.7347	37.56
1Q 2021	50.875	53.125	52.0000	2.5625	27.7211	39.62
2Q 2021	45.250	48.875	47.0625	1.1250	25.9116	36.34
3Q 2021	47.000	49.750	48.3750	0.6875	26.0834	37.10
CAL 2021	48.250	50.875	49.5625	2.2500	24.6908	34.22

## 18-Month Forward Curves

### PROPANE C3 (CONWAY IN-WELL) cts/gal



### NORMAL BUTANE NC4 (MONT BELVIEU NON-TET) cts/gal



## NORMAL BUTANE NC4 (MONT BELVIEU NON-TET) cts/gal

OPIS 14:30 ET SNAPSHOT: 70.500

FORWARD MONTH	LOW ASSESSMENT	HIGH ASSESSMENT	AVG PRICE	NET CHANGE	FRAC SPREAD	% OF CRUDE
Feb 20	70.375	71.000	70.6875	1.1250	48.2174	49.88
Mar 20	60.125	60.750	60.4375	0.8750	38.1541	42.75
Apr 20	57.875	58.500	58.1875	1.0000	35.8834	41.31
May 20	57.625	58.250	57.9375	1.0000	35.2081	41.33
Jun 20	57.625	58.250	57.9375	1.0000	34.5960	41.61
Jul 20	58.375	59.000	58.6875	1.0625	34.7339	42.48
Aug 20	59.125	59.875	59.5000	1.1250	35.3805	43.44
Sep 20	59.875	60.625	60.2500	1.1875	36.2342	44.36
Oct 20	60.625	61.375	61.0000	1.1875	36.6730	45.27
Nov 20	61.375	62.125	61.7500	1.1875	36.5827	46.16
Dec 20	62.125	62.875	62.5000	1.1875	35.4654	47.04
Jan 21	62.875	63.500	63.1875	1.1875	35.0117	47.88
Feb 21	62.500	63.250	62.8750	1.1250	35.1453	47.94
Mar 21	59.125	61.250	60.1875	1.0625	33.6404	46.15
Apr 21	56.375	59.500	57.9375	1.0625	34.0151	44.65
May 21	56.000	59.000	57.5000	1.3750	33.8784	44.51
Jun 21	55.750	58.500	57.1250	1.2500	33.2026	44.42
Jul 21	56.125	58.000	57.0625	1.3125	32.7977	44.57
2Q 2020	57.750	58.375	58.0625	1.0000	35.2292	41.42
3Q 2020	59.125	59.875	59.5000	1.1250	35.4495	43.42
4Q 2020	61.375	62.125	61.7500	1.1875	36.2403	46.15
1Q 2021	61.500	62.250	61.8750	1.0000	34.5991	47.33
2Q 2021	56.125	59.000	57.5625	1.2500	33.6987	44.53
3Q 2021	56.875	57.750	57.3125	1.3125	32.7977	44.57
CAL 2021	58.500	59.000	58.7500	1.2500	35.8526	44.49

## ISOBUTANE IC4 (MONT BELVIEU NON-TET) cts/gal

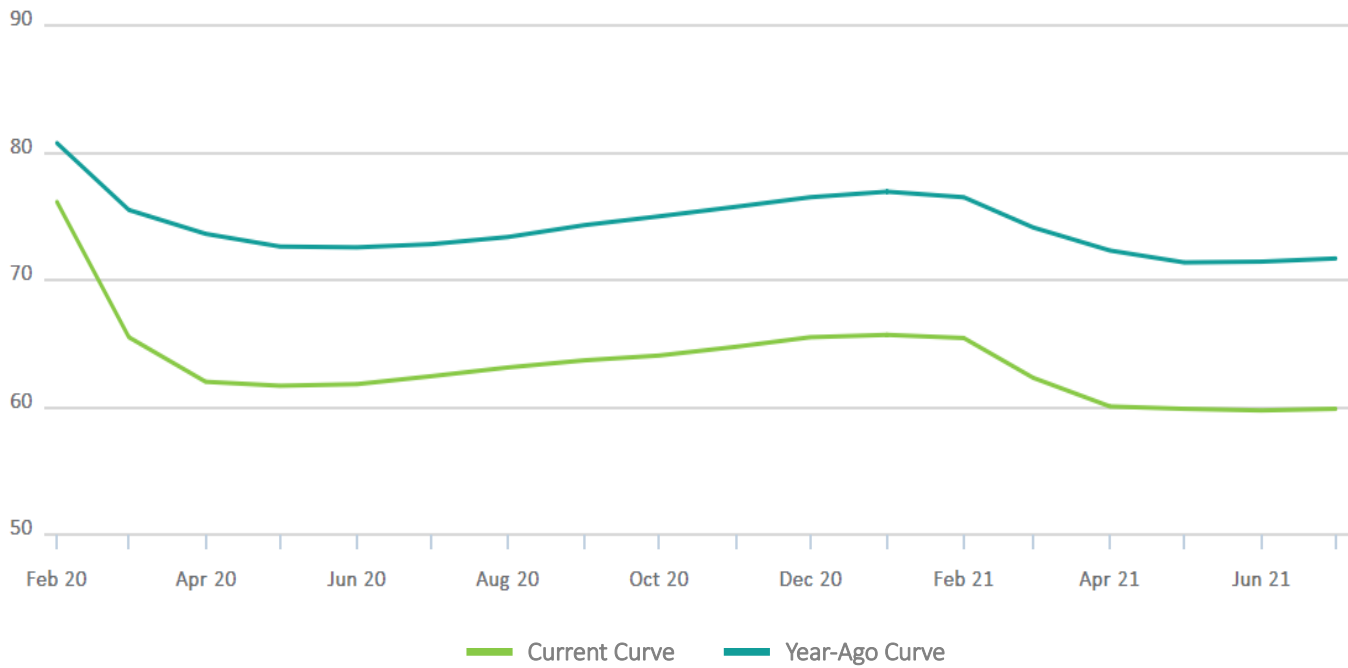
OPIS 14:30 ET SNAPSHOT: 80.000

FORWARD MONTH	LOW ASSESSMENT	HIGH ASSESSMENT	AVG PRICE	NET CHANGE	FRAC SPREAD	% OF CRUDE
Feb 20	75.125	77.125	76.1250	0.6875	54.5451	53.72
Mar 20	64.125	66.875	65.5000	0.6250	44.0995	46.33
Apr 20	61.375	62.625	62.0000	0.6250	40.5795	44.01
May 20	61.125	62.250	61.6875	0.6250	39.8586	44.01
Jun 20	61.125	62.500	61.8125	0.6250	39.3957	44.39
Jul 20	61.875	63.000	62.4375	0.6250	39.4329	45.19
Aug 20	62.625	63.625	63.1250	0.6250	39.9610	46.08
Sep 20	63.375	64.000	63.6875	0.7500	40.6232	46.89
Oct 20	63.875	64.250	64.0625	0.6250	40.6993	47.54
Nov 20	64.625	64.875	64.7500	0.6250	40.5798	48.40
Dec 20	65.375	65.625	65.5000	0.6875	39.5364	49.30
Jan 21	64.875	66.500	65.6875	1.1875	38.6280	49.78
Feb 21	64.625	66.250	65.4375	1.1875	38.8064	49.89
Mar 21	61.875	62.750	62.3125	1.6875	36.8172	47.78
Apr 21	59.125	61.000	60.0625	1.3125	37.0878	46.29
May 21	58.750	61.000	59.8750	1.6250	37.1892	46.35
Jun 21	58.500	61.000	59.7500	1.5000	36.7753	46.46
Jul 21	58.500	61.250	59.8750	1.3750	36.5715	46.77
2Q 2020	61.250	62.500	61.8750	0.6250	39.9446	44.14
3Q 2020	62.625	63.500	63.0625	0.6250	40.0057	46.05
4Q 2020	64.625	64.875	64.7500	0.6250	40.2718	48.41
1Q 2021	63.875	65.125	64.5000	1.4375	38.0839	49.15
2Q 2021	58.875	61.000	59.9375	1.5000	37.0175	46.37
3Q 2021	59.125	61.500	60.3125	1.3750	36.5715	46.77
CAL 2021	61.250	61.500	61.3750	1.6250	40.1579	46.94

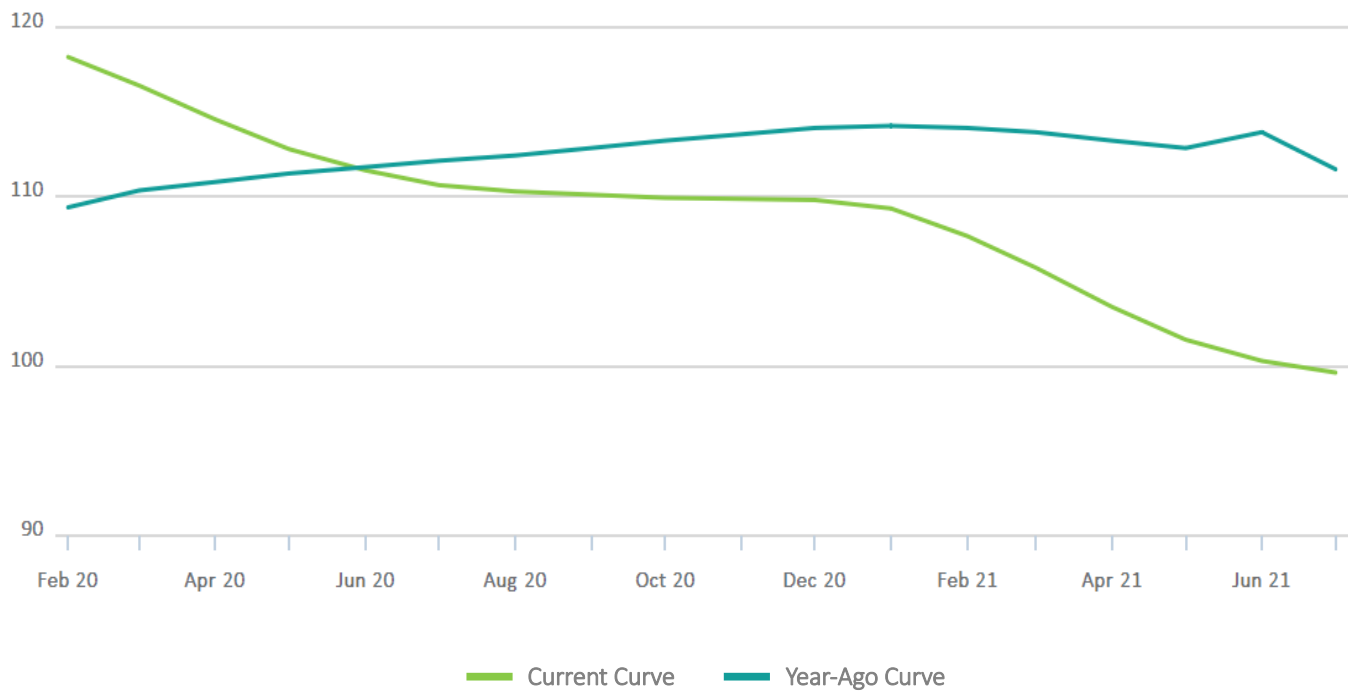


## 18-Month Forward Curves

### ISOBUTANE IC4 (MONT BELVIEU NON-TET) cts/gal



### NATURAL GASOLINE C5 (MONT BELVIEU NON-TET) cts/gal



## NATURAL GASOLINE C5 (MONT BELVIEU NON-TET) cts/gal

OPIS 14:30 ET SNAPSHOT: 121.000

FORWARD MONTH	LOW ASSESSMENT	HIGH ASSESSMENT	AVG PRICE	NET CHANGE	FRAC SPREAD	% OF CRUDE
Feb 20	118.000	118.500	118.2500	1.3750	93.1352	83.44
Mar 20	116.125	117.000	116.5625	1.1875	91.6564	82.45
Apr 20	114.000	115.125	114.5625	1.1250	89.6333	81.33
May 20	112.250	113.375	112.8125	1.1250	87.4079	80.48
Jun 20	111.000	112.125	111.5625	0.9375	85.4737	80.12
Jul 20	110.125	111.250	110.6875	0.8750	83.9146	80.12
Aug 20	109.750	110.875	110.3125	0.8750	83.3541	80.53
Sep 20	109.625	110.625	110.1250	0.7500	83.2826	81.08
Oct 20	109.375	110.500	109.9375	0.6250	82.7472	81.58
Nov 20	109.375	110.375	109.8750	0.6250	81.7455	82.13
Dec 20	109.375	110.250	109.8125	0.6875	79.5959	82.65
Jan 21	109.000	109.625	109.3125	0.5000	77.8205	82.84
Feb 21	107.125	108.250	107.6875	0.7500	76.6941	82.11
Mar 21	105.125	106.500	105.8125	1.0625	76.1409	81.14
Apr 21	102.875	104.125	103.5000	1.1875	76.7619	79.77
May 21	100.750	102.375	101.5625	1.0000	75.1607	78.62
Jun 21	99.375	101.250	100.3125	0.9375	73.5744	78.00
Jul 21	98.500	100.750	99.6250	1.2500	72.5043	77.81
2Q 2020	112.375	113.500	112.9375	1.0000	87.5050	80.64
3Q 2020	109.875	110.875	110.3750	0.8125	83.5171	80.57
4Q 2020	109.375	110.375	109.8750	0.6250	81.3629	82.12
1Q 2021	107.125	108.125	107.6250	0.6250	76.8851	82.03
2Q 2021	101.000	102.625	101.8125	1.0625	75.1657	78.80
3Q 2021	97.625	100.750	99.1875	1.1250	72.5043	77.81
CAL 2021	102.125	103.000	102.5625	1.7500	82.4523	80.96

## Ethylene Forward Cash Cost

**ETHANE  
(MONT BELVIEU) cts/lb**

FORWARD MONTH	CASH COST
Feb 20	7.9649
Mar 20	7.9647
Apr 20	7.9183
May 20	7.9408
Jun 20	7.9342
Jul 20	8.0617
Aug 20	8.1446
Sep 20	8.2580
Oct 20	8.3560
Nov 20	8.4366
Dec 20	8.5251
Jan 21	8.5932
Feb 21	8.6340
Mar 21	8.4352
Apr 21	8.2539
May 21	8.1528
Jun 21	8.1509
Jul 21	8.1704

**PROPANE  
(TET) cts/lb**

FORWARD MONTH	CASH COST
Feb 20	12.6110
Mar 20	12.5565
Apr 20	12.4784
May 20	12.7126
Jun 20	13.0511
Jul 20	13.4094
Aug 20	13.7389
Sep 20	14.0113
Oct 20	14.3930
Nov 20	14.7301
Dec 20	15.0147
Jan 21	15.2350
Feb 21	15.2504
Mar 21	14.2268
Apr 21	13.4272
May 21	13.2426
Jun 21	13.2049
Jul 21	13.4196

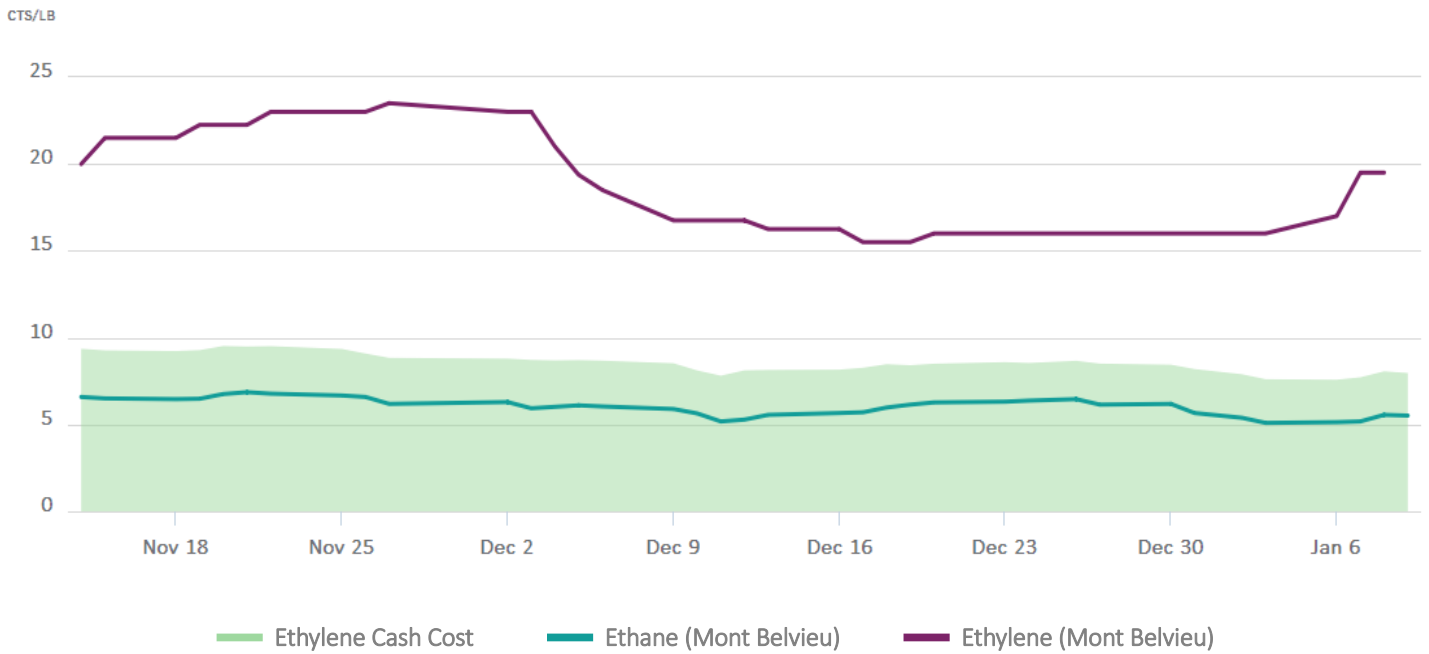
**NORMAL BUTANE  
(NON-TET) cts/lb**

FORWARD MONTH	CASH COST
Feb 20	19.1569
Mar 20	15.5684
Apr 20	14.8207
May 20	14.7567
Jun 20	14.7658
Jul 20	14.9420
Aug 20	15.1228
Sep 20	15.2855
Oct 20	15.5218
Nov 20	15.7191
Dec 20	15.8875
Jan 21	16.0194
Feb 21	15.9564
Mar 21	15.0941
Apr 21	14.4401
May 21	14.3402
Jun 21	14.2284
Jul 21	14.2121

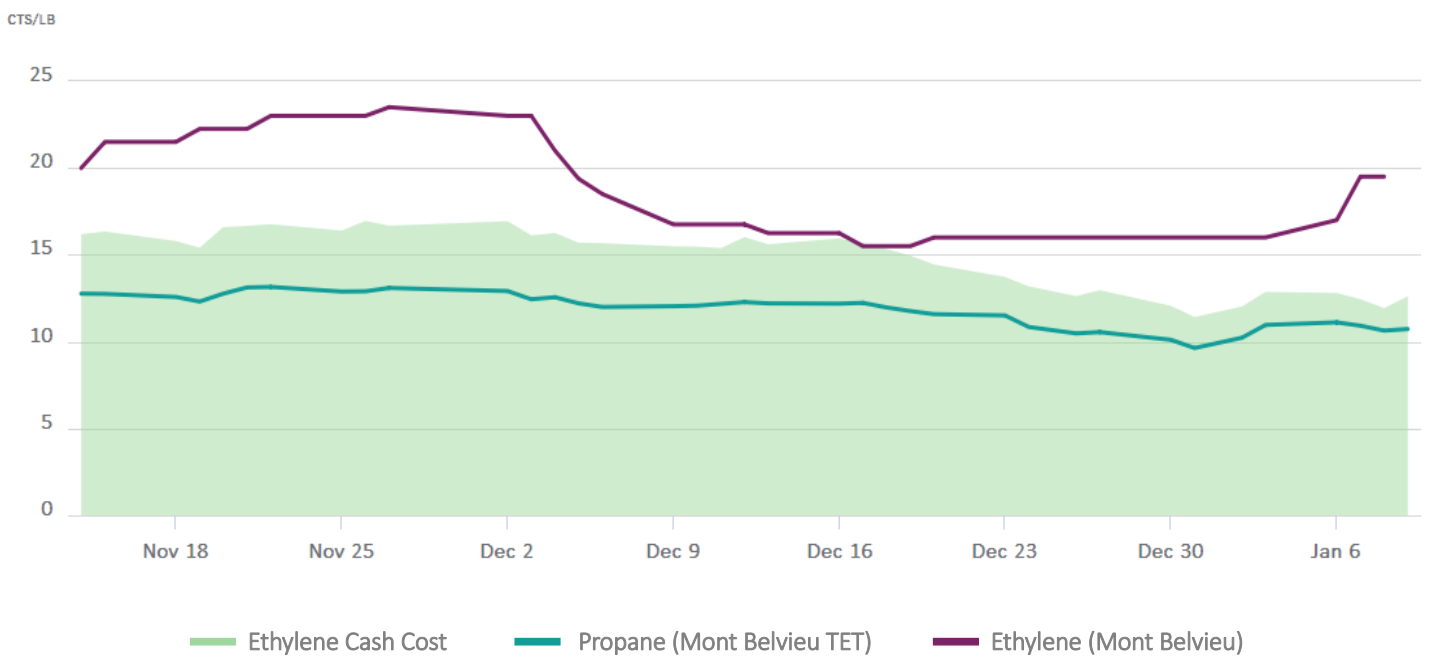
**NATURAL GASOLINE  
(NON-TET) cts/lb**

FORWARD MONTH	CASH COST
Feb 20	38.0836
Mar 20	37.0221
Apr 20	35.7094
May 20	34.7255
Jun 20	34.0557
Jul 20	33.2995
Aug 20	32.8607
Sep 20	32.5382
Oct 20	32.5905
Nov 20	32.4471
Dec 20	32.2753
Jan 21	31.7600
Feb 21	30.9072
Mar 21	29.7081
Apr 21	28.5416
May 21	27.7715
Jun 21	27.0832
Jul 21	26.6649

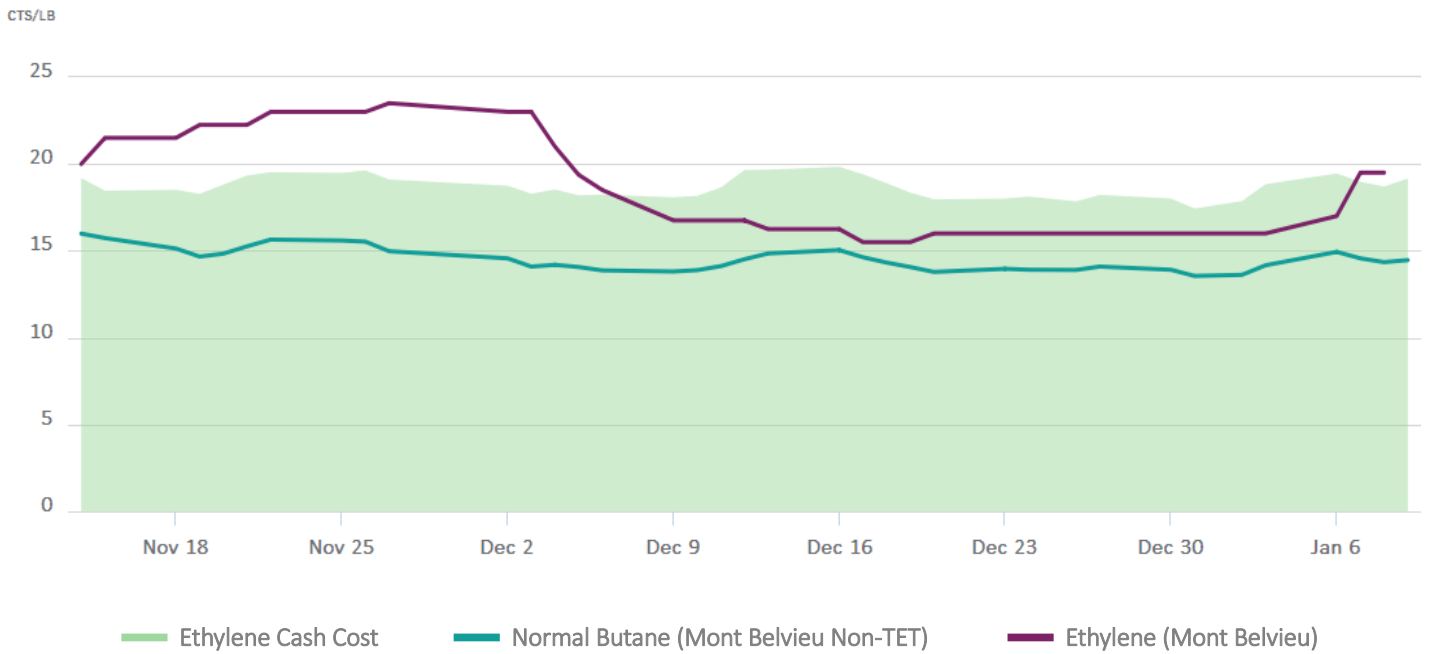
### C2 Ethylene Cash Cost (Mont Belvieu) cts/lb



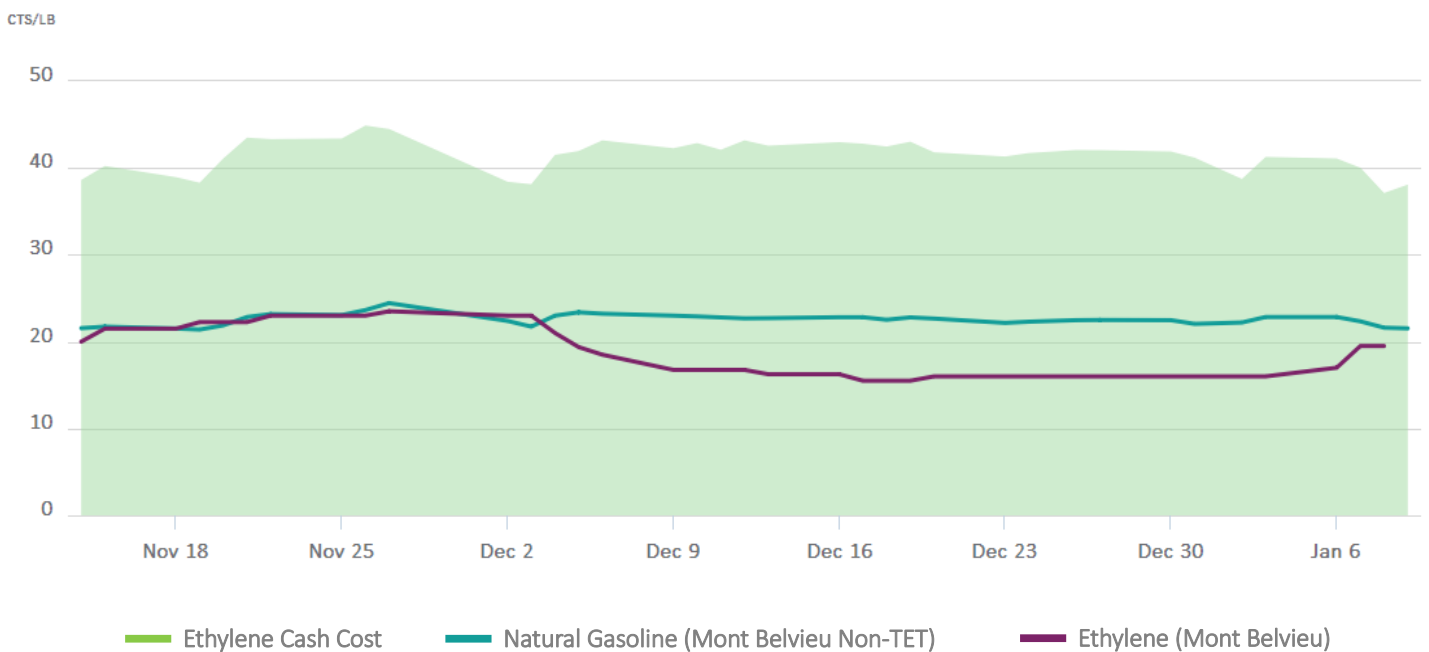
### C3 Ethylene Cash Cost (TET) cts/lb



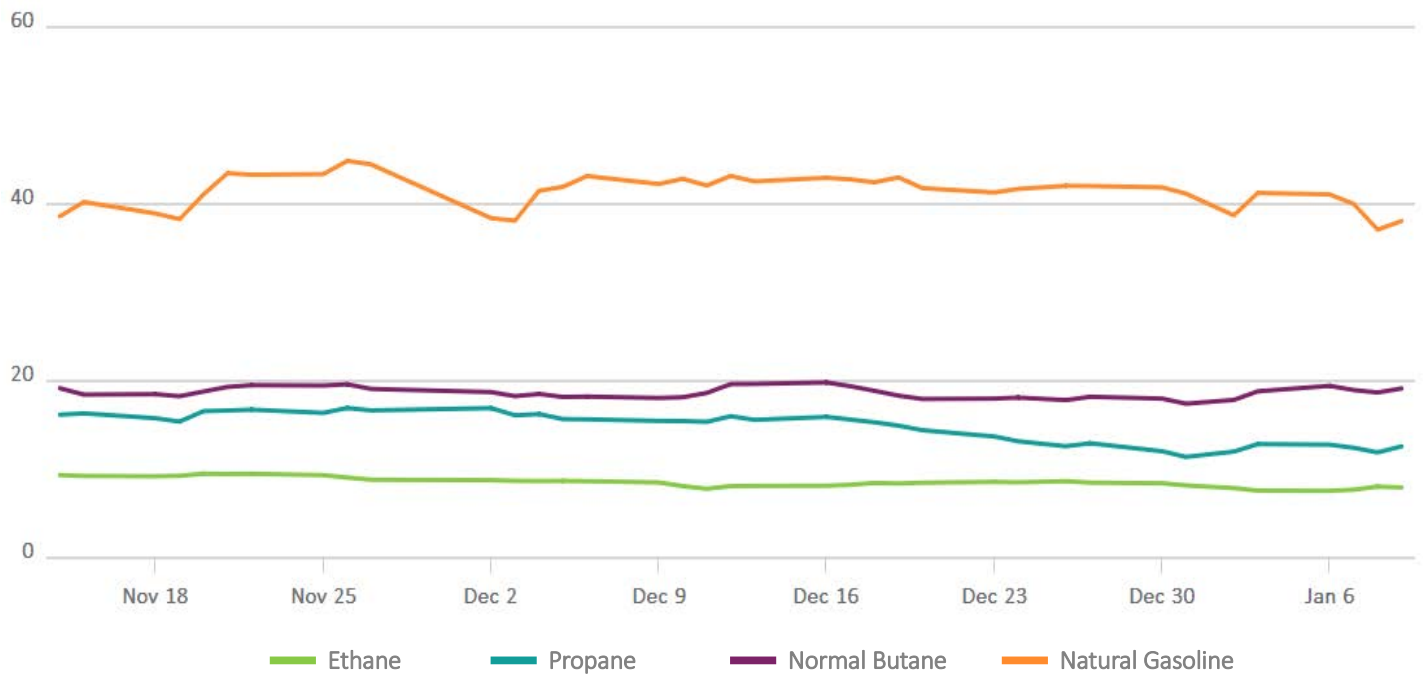
### NC4 Ethylene Cash Cost (Non-TET) cts/lb



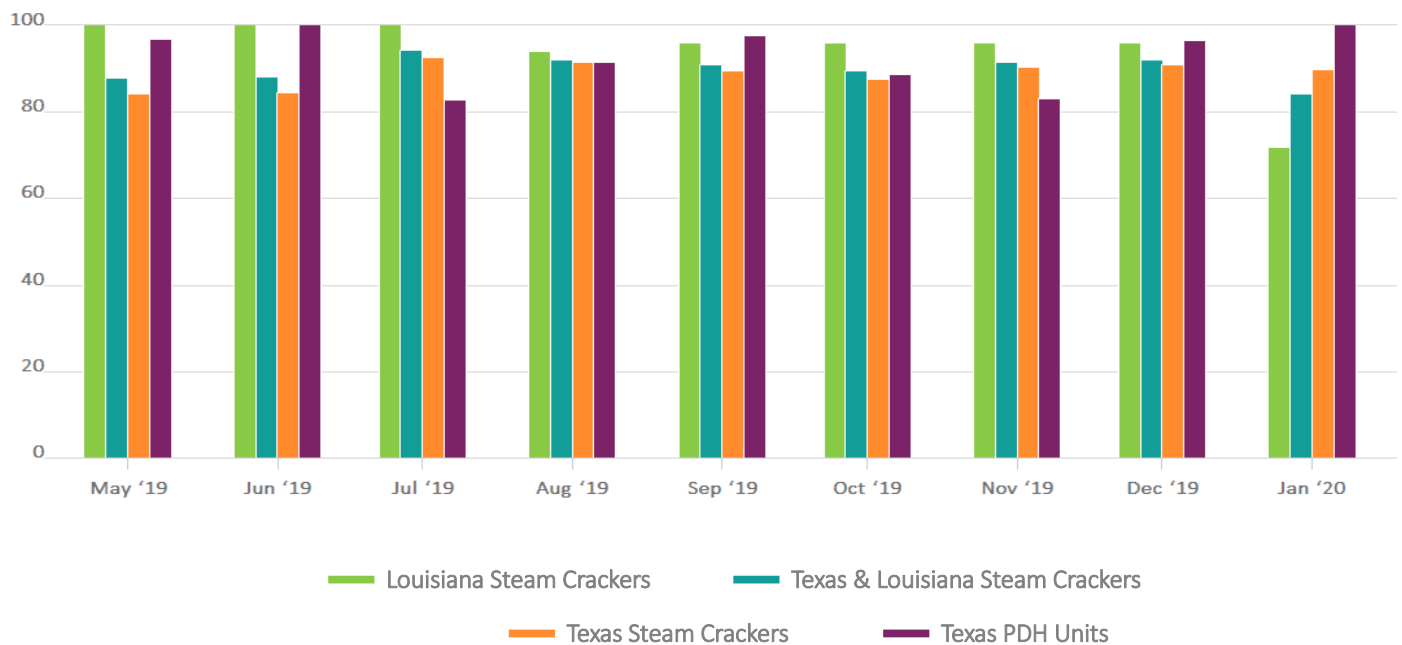
### C5 Ethylene Cash Cost (Non-TET) cts/lb



### Ethylene Forward Cash Costs cts/lb



### US Olefin Plant Estimated Maximum Operating Rates %



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**SPECIFICATIONS**

Table of physical properties of interest to the natural gas and natural gas liquids industries may be found in the published Gas Processors Association (GPA) Midstream Standard 2145-16

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**METHODOLOGY**

The OPIS PCW Ethylene Cash Costs are derived using formulas based on practices used within the industry related to product yields per feedstock. Input values include OPIS NGLs data and OPIS PCW Olefins data. For more information, visit [www.opisnet.com/about/methodology.aspx](http://www.opisnet.com/about/methodology.aspx).

Methodology used by OPIS PCW to estimate maximum olefins plant operating rates is based on confirmed outages and verified rate reductions. It intends to portray the highest possible rate the industry could operate at using confirmed information.

**Polypropylene-Propane**

Jan 29.09 / 126.53

Feb 28.22 / 122.78

1Q 29.02 / 126.23

Asian petrochemical producers plan to cut liquefied petroleum gas (LPG) cracking for a second straight month in February to a four-month low as a surge in gas prices squeezed ethylene margins, a survey showed.

However, LPG cracking may pick up if tensions in the Middle East heighten further and even disrupt naphtha supplies, especially in the unlikely event of a closure of the Hormuz Strait, some respondents said. This would give U.S.-sourced propane an edge, industry sources said.

Sixteen petrochemical companies in North and Southeast Asia will crack 566,000 mt of LPG in February, down 8.6% from 619,000 mt planned in January, according to an IHS Markit OPIS poll conducted on Jan. 2-8. The February volume, if materialized, would be the smallest since October 2019.

"The recent jump in LPG price is due to deeper OPEC production cuts, some shipping delay in the USGC and winter heating demand," said Matthew Chew, principal oil analyst at IHS Markit in Singapore.

"The impact will diminish soon and should not have long-term impact," Chew said. "Once the seasonal factors are gone, probably in the second quarter, LPG cracking will rise again." LPG prices usually strengthen in the northern hemisphere winter months as demand for heating use intensifies.

This winter, LPG found further support from Chinese petrochemical companies, tighter supply from the Middle East and fog in Houston that disrupted shipping.

All of which pushed CFR Japan LPG to a five-year peak of \$702.00/mt on Dec. 30, 2019, IHS Markit OPIS data showed.

On the other hand, naphtha prices lost steam as some cracker operators reduced runs as ethylene margins were squeezed amid sluggish demand. The CFR Japan price fell to \$577.625/mt on Wednesday compared with \$588.500/mt on Dec. 27, 2019, the highest since late-April.

Tensions between the U.S. and Iran escalated this past week after Tehran retaliated to the Washington airstrike that killed a top Iranian general with the bombing of U.S. military bases in Baghdad.

If tanker passage through the Strait of Hormuz is hindered, both naphtha and LPG prices will jump, although the impact on propane may be less pronounced due to the availability of U.S. origin cargoes, traders said.

For now, producers were focused on feedstock economics as the U.S. and Iran standoff appeared to have cooled off slightly. LPG cracking economics deteriorated with the propane/naphtha price ratio assessed at 101.0% on Dec. 30, the highest since Dec. 21, 2017, IHS Markit OPIS data showed.

The ratio compares the first physical trading cycle for naphtha, with the second cycle for the CFR Japan price of 23,000 mt

propane.

The ratio has been above the 90% threshold since early November, but most petrochemical producers continued to use LPG over naphtha as they were still able to make a profit.

The recent surge in LPG prices, however, deteriorated ethylene margins.

The cash cost of steam cracking in Southeast Asia using LPG was estimated at \$968/mt, generating a margin of minus \$343/mt as of Dec. 26, according to IHS Markit Asia Light Olefins Weekly Report on Jan. 3.

The cost in Northeast Asia was \$986/mt with a margin of minus \$261/mt, the data showed.

Ethylene margins from using naphtha were slightly better.

The cash cost of steam cracking naphtha in Southeast Asia was \$909/mt, generating a margin of minus \$284/mt, while in Northeast Asia it was \$876/mt with a margin of minus \$151/mt, the IHS Markit report showed.

As a result, gas usage, especially propane, was reduced.

Among the survey participants, seven will crack propane in this month and the next.

Propane use by six will fall 9.3% to 360,000 mt in February from 397,000 mt this month. One will use both propane and butane but did not provide a breakdown.

LG Chem plans to close the LPG (propane) cracking portion of its petrochemical plant on Jan. 13 for a week for maintenance, as reported earlier.

The 11 participants that can crack butane plan to maintain their volume at 146,000 mt next month, compared to January.

Ethylene prices tumbled with CFR Southeast Asia dropping to \$640-\$690/mt, the lowest since 2009, and CFR Northeast Asia in the week to Dec. 12 falling to a two-month low of \$710-\$750/mt, according to IHS Markit data.

"It doesn't matter which feedstocks we use. It's not economical," said a trader at a petrochemical company in Northeast Asia, which lowered cracker runs by 10% from the last weekend.

These output cuts, along with Chinese demand ahead of the Lunar New Year holidays in late January may support ethylene prices, although supply will limit its upside, traders said.

CFR Northeast Asia ethylene in the week to Dec. 27 rose to \$740-\$770/mt, according to IHS Markit data. CFR Southeast Asia prices were stable in quiet trading.

Moreover, the regional economy held its recovery momentum as the Asia manufacturing PMI held at a one-year high of 50.7 in December, according to IHS Markit data.