

## ASIA

- In Singapore, term delivered 0.5% VLSFO marine fuels reported transacted at \$55-\$65/mt premium to 10ppm gasoil
- Kuwait Petroleum Corporation offers HSFO as its refineries undergo upgrading
- No bids in the afternoon Singapore online for HSFO

## EUROPE

- Bunker fuel prices outstrips futures
- Brent up by \$1.90/bbl
- VLSFO barges up by \$19.35/ton (\$2.97/bbl)

## AMERICAS

- Prices rise across regions on back of surging energy complex
- Houston buyers lift MGO, VLSFO; RMG interest waning
- Pac Northwest MGO, VLSFO prices climb as diesel firms

### SINGAPORE BUNKERS (\$/mt delivered)

PRODUCT	LOW	HIGH	MEAN	CHANGE
LSMGO	724.75	725.25	725.000	15.000
0.5% VLSFO	726.75	727.25	727.000	7.000
HS 380 CST	370.57	371.07	370.823	25.816

### ROTTERDAM BUNKERS (\$/mt delivered)

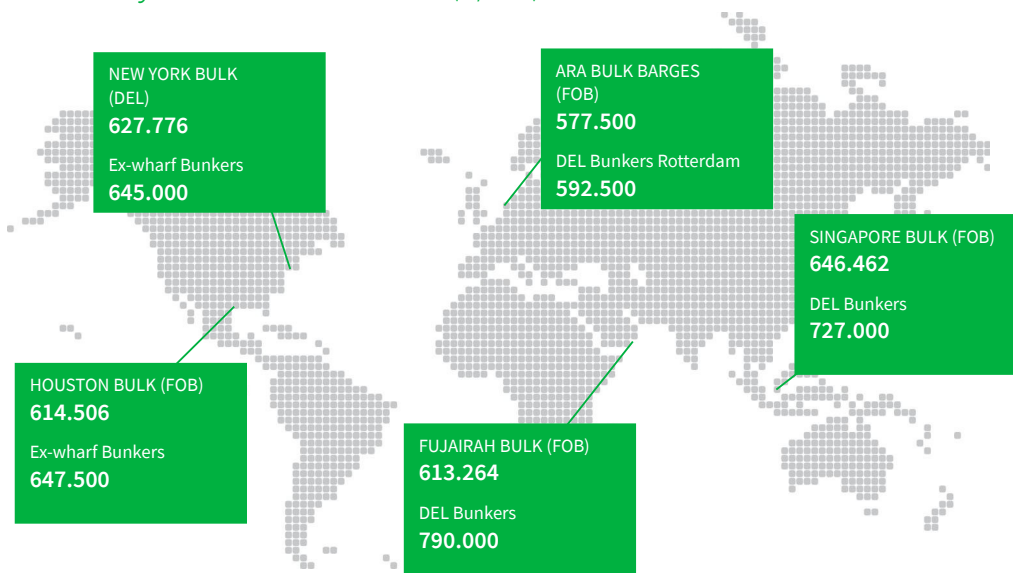
PRODUCT	LOW	HIGH	MEAN	CHANGE
DMA	606.00	611.00	608.500	7.000
0.5% VLSFO	590.00	595.00	592.500	5.000
HS 380 CST	300.00	305.00	302.500	5.000

### HOUSTON BUNKERS (\$/mt ex-wharf)

PRODUCT	BASIS DIFF*	LOW	HIGH	MEAN	CHANGE
LSMGO	-- --	678.00	682.00	680.000	2.500
0.5% VLSFO	2.49	645.00	650.00	647.500	5.000
HS 380 CST	-- --	355.00	360.00	357.500	-7.500

\* Diff to Front Month NYMEX ULSD Futures Price as Displayed on Page 7

## 0.5% Very Low Sulfur Fuel Oil (\$/mt)



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## ASIA

### Kuwait offers HSFO

Delivered second quarter term supply of 0.5% VLSFO marine fuels reported transacted at \$55-\$65/mt premium over Singapore 10ppm gasoil price assessment, market participants said. Tight supply of 0.5% VLSFO in north Asia also started to snap up VLSFO inventories in Singapore as shipping fixtures indicated.

Kuwait Petroleum Corporation (KPC) offered its third January-loading 80,000mt 380 CST high sulfur fuel oil (HSFO) with a maximum sulfur content of 4-4.15%. the cargo is scheduled to load from Mina Al Ahmadi (MAA) and/or Mina Abdullah (MAB) over Jan 22-23. The tender closes on Jan 3. Market participants said the HSFO could possibly be straight-run fuel oil.

This as Kuwaiti state refiner KNPC's clean fuels project (CFP) to upgrade its MAA and MAB refineries. Japan's JGC, the contractor for the CFP work at Mina Al-Ahmadi said in its 2019 annual report released on Oct 4 that is "about a year up to completion. The project will see 6 units to be revamped and 7 units will be closed at MAA and MAB. KPC previously sold a similar 80,000mt HSFO at around \$110/mt premium over Middle East Gulf 380 CST fuel oil pricing possibly to Vitol. The cargo is scheduled to load Jan 12-13.

#### SINGAPORE BULK FUEL (FOB)

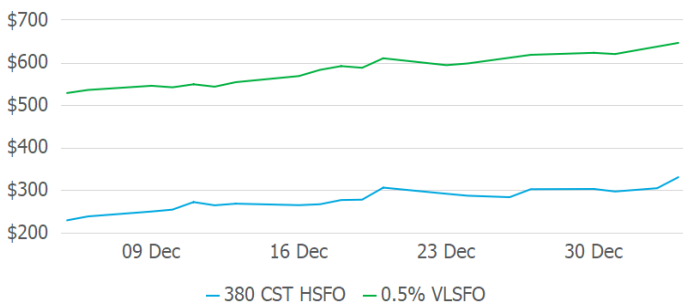
PRODUCT (\$/mt)	BASIS DIFF*	LOW	HIGH	MEAN	CHANGE
0.5% VLSFO	-- --	646.21	646.71	646.462	8.750
380 CST HSFO	21.99	330.31	330.81	330.563	25.816
PRODUCT (\$/bbl)	BASIS DIFF*	LOW	HIGH	MEAN	CHANGE
0.5% VLSFO	-- --	96.42	96.50	96.458	1.306
380 CST HSFO	3.46	52.02	52.10	52.057	4.066

\* Cash mean differential to swaps

#### FUJAIRAH BULK FUEL (FOB)

PRODUCT	LOW	HIGH	MEAN	CHANGE
0.5% VLSFO (\$/mt)	613.01	613.51	613.264	11.747
0.5% VLSFO (\$/bbl)	91.47	91.54	91.505	1.753

#### 30-DAY PRICES FOR SINGAPORE BULK VLSFO (\$/mt FOB)



#### SINGAPORE BUNKERS (\$/mt delivered)

PRODUCT	LOW	HIGH	MEAN	CHANGE
LSMGO	724.75	725.25	725.000	15.000
0.5% VLSFO	726.75	727.25	727.000	7.000
HS 380 CST	370.57	371.07	370.823	25.816

#### FUJAIRAH BUNKERS (\$/mt delivered)

PRODUCT	LOW	HIGH	MEAN	CHANGE
LSMGO	799.75	800.25	800.000	10.000
0.5% VLSFO	789.75	790.25	790.000	19.000

#### CHIBA BUNKERS (\$/mt delivered)

PRODUCT	LOW	HIGH	MEAN	CHANGE
LSMGO	784.75	785.25	785.000	15.000
0.5% VLSFO	751.75	752.25	752.000	7.000

#### BUSAN BUNKERS (\$/mt delivered)

PRODUCT	LOW	HIGH	MEAN	CHANGE
LSMGO	724.75	725.25	725.000	35.000
0.5% VLSFO	699.75	700.25	700.000	-30.000

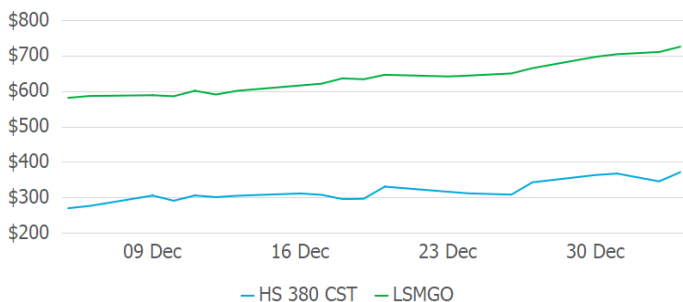
#### KAOHSIUNG BUNKERS (\$/mt delivered)

PRODUCT	LOW	HIGH	MEAN	CHANGE
LSMGO	719.75	720.25	720.000	0.000
0.5% VLSFO	739.75	740.25	740.000	5.000

#### ZHOUSHAN BUNKERS (\$/mt delivered)

PRODUCT	LOW	HIGH	MEAN	CHANGE
LSMGO	739.75	740.25	740.000	15.000
0.5% VLSFO	741.75	742.25	742.000	7.000

#### 30-DAY PRICES FOR SINGAPORE BUNKERS (\$/mt delivered)



## EUROPE

### Bunkers outpace futures

Bunker fuel prices outstripped surging futures today following the death of a top Iranian general from U.S. air strikes.

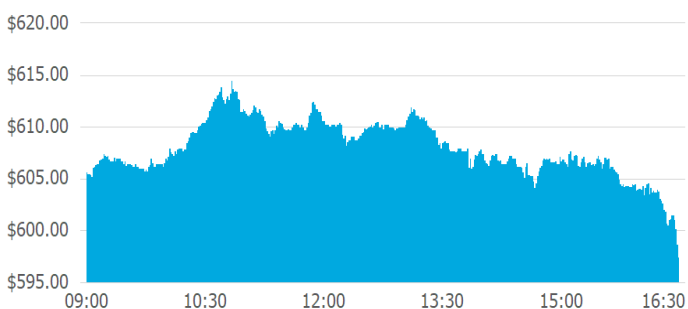
The news caused Brent to hit highs above \$69/bbl in the morning, but retreated to \$67.82/bbl by the afternoon marker, but still up \$1.90/bbl from yesterday, and despite an 11.5 million barrel draw in US. Crude stocks last week.

Low Sulfur Gaosil futures settled only \$10/ton (\$1.34/bbl) higher after the U.S. government reported an 8.8 milion build in distillate stocks.

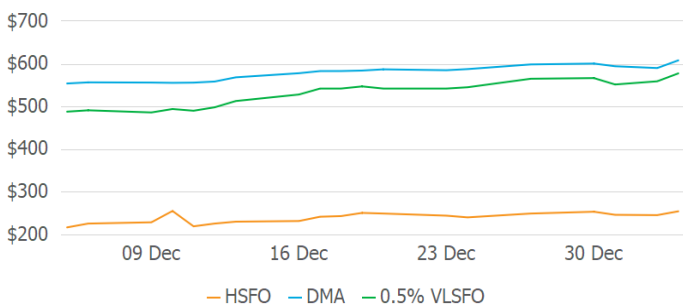
The VLSFO front month rose by \$19.35/ton (\$2.97/bbl) to \$571.95/ton. The HSFO front month rose by \$8.25/ton (\$1.3 bbl) to \$256/ton.

Some 18,000 tons of HSFO barges in ARA changed hands on Friday at a range of \$252-256.5/tons, up \$13/ton (\$2.10/bbl) previously. Totsa was the main sellers and Litasco the main buyer.

#### OPIS450 FULL-DAY PRICE FLUCTUATION FOR ARA BULK DMA (\$/mt FOB Barge)



#### 30-DAY PRICE FOR ARA BULK (\$/mt FOB Barge)



#### ROTTERDAM BUNKERS (\$/mt delivered)

PRODUCT	LOW	HIGH	MEAN	CHANGE
DMA	606.00	611.00	608.500	7.000
0.5% VLSFO	590.00	595.00	592.500	5.000
HS 380 CST	300.00	305.00	302.500	5.000

#### ANTWERP BUNKERS (\$/mt delivered)

PRODUCT	LOW	HIGH	MEAN	CHANGE
DMA	606.00	611.00	608.500	7.000
0.5% VLSFO	590.00	595.00	592.500	5.000
HS 380 CST	300.00	305.00	302.500	5.000

#### HAMBURG BUNKERS (\$/mt delivered)

PRODUCT	LOW	HIGH	MEAN	CHANGE
DMA	606.00	611.00	608.500	7.000
0.5% VLSFO	590.00	595.00	592.500	5.000
HS 380 CST	300.00	305.00	302.500	5.000

#### ISTANBUL BUNKERS (\$/mt delivered)

PRODUCT	LOW	HIGH	MEAN	CHANGE
LSMGO	765.00	770.00	767.500	0.000
0.5% VLSFO	730.00	735.00	732.500	0.000
HS 380 CST	390.00	395.00	392.500	2.000

#### GIBRALTAR BUNKERS (\$/mt delivered)

PRODUCT	LOW	HIGH	MEAN	CHANGE
LSMGO	710.00	715.00	712.500	-37.000
0.5% VLSFO	680.00	685.00	682.500	-50.000
HS 380 CST	390.00	395.00	392.500	20.000

#### PIRAEUS BUNKERS (\$/mt delivered)

PRODUCT	LOW	HIGH	MEAN	CHANGE
LSMGO	705.00	710.00	707.500	-8.000
0.5% VLSFO	695.00	700.00	697.500	7.500
HS 380 CST	363.00	368.00	365.500	0.000

**ARA BULK BARGES (FOB)**

PRODUCT (\$/mt)	BASIS DIFF*	LOW	HIGH	MEAN	CHANGE
DMA	-27.00	597.51	614.52	608.049	17.993
0.5% VLSFO	-48.00	576.00	579.00	577.500	18.500
HSFO	-- --	252.00	256.50	254.250	9.000
PRODUCT (\$/bbl)	BASIS DIFF*	LOW	HIGH	MEAN	CHANGE
DMA	-3.82	84.55	86.96	86.041	2.546
0.5% VLSFO	-7.56	90.71	91.18	90.945	2.913
HSFO	-- --	39.69	40.39	40.039	1.417

\* Diff to Front Month ICE LS Gasoil Futures Prices as Displayed on Page 7

**MEDITERRANEAN BULK CARGOES (CIF)**

PRODUCT (\$/mt)	LOW	HIGH	MEAN	CHANGE
0.5% VLSFO	567.70	571.70	569.700	18.600
HSFO	251.75	255.75	253.750	7.500
PRODUCT (\$/bbl)	LOW	HIGH	MEAN	CHANGE
0.5% VLSFO	89.40	90.03	89.717	2.929
HSFO	39.65	40.28	39.961	1.181

**NWE BULK CARGOES (CIF)**

PRODUCT (\$/mt)	LOW	HIGH	MEAN	CHANGE
DMA	598.50	602.50	600.500	10.250
0.5% VLSFO	578.00	581.00	579.500	18.500
HSFO	254.00	258.50	256.250	9.000
PRODUCT (\$/bbl)	LOW	HIGH	MEAN	CHANGE
DMA	84.69	85.26	84.972	1.450
0.5% VLSFO	91.02	91.50	91.260	2.913
HSFO	40.00	40.71	40.354	1.417

**AMERICAS****Bunkers climb with overall energy complex strength**

Bunker prices across the regions were up Friday as the energy complex surged in the wake of Middle East tensions.

In the U.S. Gulf Coast, Houston markets were heard to be busy at end of week with market participants returning after the holidays. Now that the market is fully in the year 2020, deals have been leaning toward VLSFO and MGO, with RMG “pretty much phased out, maybe 1 inquiry a week for it,” said a Gulf source.

Houston marine gasoil moved up \$2.50 per metric ton heard at \$680 per metric ton ex-wharf. Houston VLSFO rose \$5/mt heard at

\$650/mtw.

In the Pacific Northwest, MGO jumped as diesel prices in the region firmed. Seattle MGO increased \$10/mt to \$657/mtw. Vancouver MGO increased \$20/mt heard at \$680-685/mtw, while Vancouver VLSFO raced up \$25/mt heard at \$660-665/mtw.

Panama VLSFO shot up \$7.50/mt to be assessed at \$670-680/mtw. Valparaiso VLSFO also saw a gain rising \$6/mtw to be heard at \$727/mtw.

**HOUSTON FUEL BTU INDICATOR**

PRODUCT	API	BTUs/bbl	BTUs/mt	MEAN (\$/bbl)	MEAN (\$/mt)	BTUs/\$
GC ULSD	30	5,880,000	42,303,660	83.114	619.198	68,320
0.5% VLSFO	25	5,989,200	41,755,505	96.613	647.500	64,487
HS 380 CST	11.3	6,246,000	39,633,993	56.299	357.500	110,864

\* General Indication of the number of BTUs per US dollar spent for various grades of fuel based on API.

**AMERICAS BUNKERS (\$/mt ex-wharf)**

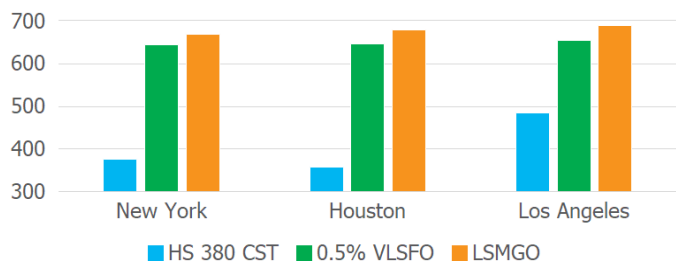
HOUSTON					
PRODUCT	BASIS DIFF*	LOW	HIGH	MEAN	CHANGE
LSMGO	-- --	678.00	682.00	680.000	2.500
0.5% VLSFO	2.49	645.00	650.00	647.500	5.000
HS 380 CST	-- --	355.00	360.00	357.500	-7.500
NEW ORLEANS					
PRODUCT	BASIS DIFF*	LOW	HIGH	MEAN	CHANGE
LSMGO	-- --	670.00	680.00	675.000	5.000
0.5% VLSFO	9.99	650.00	660.00	655.000	5.000
HS 380 CST	-- --	385.00	390.00	387.500	5.000
NEW YORK					
PRODUCT	BASIS DIFF*	LOW	HIGH	MEAN	CHANGE
LSMGO	-- --	665.00	675.00	670.000	5.000
0.5% VLSFO	-0.01	640.00	650.00	645.000	5.000
HS 380 CST	-- --	370.00	380.00	375.000	5.000
PHILADELPHIA					
PRODUCT	BASIS DIFF*	LOW	HIGH	MEAN	CHANGE
LSMGO	-- --	670.00	680.00	675.000	10.000
0.5% VLSFO	4.99	645.00	655.00	650.000	5.000
HS 380 CST	-- --	405.00	409.00	407.000	0.000
NORFOLK					
PRODUCT	BASIS DIFF*	LOW	HIGH	MEAN	CHANGE
LSMGO	-- --	685.00	695.00	690.000	5.000
0.5% VLSFO	19.99	660.00	670.00	665.000	5.000
HS 380 CST	-- --	457.00	461.00	459.000	0.000
SAVANNAH					
PRODUCT	BASIS DIFF*	LOW	HIGH	MEAN	CHANGE
LSMGO	-- --	685.00	695.00	690.000	5.000
0.5% VLSFO	34.99	675.00	685.00	680.000	0.000
HS 380 CST	-- --	450.00	455.00	452.500	0.000
SEATTLE					
PRODUCT	BASIS DIFF*	LOW	HIGH	MEAN	CHANGE
LSMGO	-- --	652.00	662.00	657.000	10.000
0.5% VLSFO	-7.51	635.00	640.00	637.500	5.000
HS 380 CST	-- --	320.00	325.00	322.500	5.000

**AMERICAS BUNKERS - CONTINUED (\$/mt ex-wharf)**

LOS ANGELES					
PRODUCT	BASIS DIFF*	LOW	HIGH	MEAN	CHANGE
LSMGO	-- --	685.00	695.00	690.000	5.000
0.5% VLSFO	9.99	650.00	660.00	655.000	10.000
HS 380 CST	-- --	480.00	490.00	485.000	5.000
PANAMA					
PRODUCT	BASIS DIFF*	LOW	HIGH	MEAN	CHANGE
LSMGO	-- --	705.00	715.00	710.000	5.000
0.5% VLSFO	29.99	670.00	680.00	675.000	7.500
HS 380 CST	-- --	360.00	370.00	365.000	-5.000
VANCOUVER					
PRODUCT	BASIS DIFF*	LOW	HIGH	MEAN	CHANGE
LSMGO	-- --	680.00	685.00	682.500	20.000
0.5% VLSFO	17.49	660.00	665.00	662.500	26.000
HS 380 CST	-- --	335.00	340.00	337.500	17.500
MANZANILLO					
PRODUCT	BASIS DIFF*	LOW	HIGH	MEAN	CHANGE
LSMGO	-- --	1195.00	1205.00	1200.000	0.000
0.5% VLSFO	299.99	943.00	947.00	945.000	0.000
HS 380 CST	-- --	415.00	425.00	420.000	0.000
VERACRUZ					
PRODUCT	BASIS DIFF*	LOW	HIGH	MEAN	CHANGE
LSMGO	-- --	1195.00	1205.00	1200.000	0.000
0.5% VLSFO	299.99	943.00	947.00	945.000	0.000
HS 380 CST	-- --	415.00	425.00	420.000	0.000
VALPARAISO					
PRODUCT	BASIS DIFF*	LOW	HIGH	MEAN	CHANGE
LSMGO	-- --	824.00	834.00	829.000	0.000
0.5% VLSFO	81.99	725.00	729.00	727.000	6.000
HS 380 CST	-- --	483.00	487.00	485.000	0.500

\* Diff to Front Month NYMEX ULSD Futures as Displayed on Page 7

### BUNKER FUELS vs LSMGO (\$/mt ex-wharf)



### AMERICAS BARGE RATES (\$/mt)

LOCATION	LOW	HIGH
Houston	11.00	20.00
New Orleans	10.50	19.00
New York	8.25	15.00
Philadelphia	9.00	16.00
Norfolk, VA	10.25	21.00
Savannah	10.25	21.00
Los Angeles	13.00	20.00
Seattle	12.50	18.50
Panama	10.25	18.75
Vancouver, BC	11.25	18.75
Manzanillo	12.45	18.50
Veracruz	12.45	18.50
Valparaiso	12.25	19.25

\* Typical Barge Rates for Parcels of 600-1600mt

## OPIS Benchmark Rack ULSD

### OPIS GROSS TERMINAL ULTRA LOW SULFUR DISTILLATE PRICES

LOCATION	RACK LOW (\$/gal)	RACK LOW (\$/mt)	DIFF TO NYMEX* (\$/gal)	DIFF TO NYMEX* (\$/mt)	RACK AVG (\$/gal)	RACK AVG (\$/mt)	DIFF TO NYMEX* (\$/gal)	DIFF TO NYMEX* (\$/mt)
Houston**	1.9815	620.011	-0.0799	-25.001	2.0441	639.599	-0.0173	-5.413
New York	2.1147	661.690	0.0533	16.678	2.1422	670.294	0.0808	25.282
Philadelphia	2.0700	647.703	0.0086	2.691	2.1080	659.593	0.0466	14.581
Norfolk	2.0123	629.649	-0.0491	-15.363	2.0527	642.290	-0.0087	-2.722
New Orleans	1.9680	615.787	-0.0934	-29.225	2.0146	630.368	-0.0468	-14.644
Los Angeles***	2.0786	650.394	0.0172	5.382	2.1355	668.198	0.0741	23.186
Seattle	1.8868	590.380	-0.1746	-54.632	1.9515	610.624	-0.1099	-34.388
Detroit	1.8835	589.347	-0.1779	-55.665	1.9406	607.214	-0.1208	-37.798
Vancouver	2.3251	727.524	0.2637	82.512	2.3292	728.807	0.2678	83.795

\* Diff to Front Month Nymex ULSD Settle

\*\* ULSD LED

\*\*\* CARB ULSD (adjusted to exclude CAR)

### HOUSTON BULK FUEL (FOB)

PRODUCT (\$/bbl)	DIFF*	LOW	HIGH	MEAN	CHANGE
0.5% VLSFO	5.11	89.69	93.69	91.690	2.820
3% HSFO	---	46.00	46.10	46.050	-1.000
PRODUCT (\$/mt)	DIFF*	LOW	HIGH	MEAN	CHANGE
0.5% VLSFO	-30.51	601.10	627.91	614.506	18.900
3% HSFO	---	292.10	292.73	292.417	-6.350

### BASIS NEW YORK HARBOR BULK FUEL (DELIVERED)

PRODUCT (\$/bbl)	DIFF*	LOW	HIGH	MEAN	CHANGE
0.3% ULSFO	---	96.00	96.10	96.050	1.400
0.5% VLSFO	7.09	91.67	95.67	93.670	3.900
1% SFO	---	80.65	80.75	80.700	1.400
3% HSFO	---	48.75	48.85	48.800	0.700
PRODUCT (\$/mt)	DIFF*	LOW	HIGH	MEAN	CHANGE
0.3% ULSFO	---	656.64	657.32	656.982	9.576
0.5% VLSFO	-17.24	614.37	641.18	627.776	26.138
1% SFO	---	512.13	512.76	512.445	8.890
3% HSFO	---	309.56	310.20	309.880	4.445

\* Diff to Front Month NYMEX ULSD Futures as Displayed on Page 7

### U.S. GULF COAST FOB LNG (\$/MMBtu)

	1-15 DAY 01/04-01/18	16-30 DAY 01/19-02/02	31-45 DAY 02/03-02/17	46-60 DAY 02/18-03/03
Differential	1.014	0.872	0.866	0.817
NG Price	2.011	2.130	2.112	2.112
Assessment	3.025	3.002	2.978	2.929

### U.S. GULF COAST LIGHT CYCLE OIL (\$/gal)

PRODUCT	LOW	HIGH	MEAN	CHANGE
LT Cycle Oil	1.93	1.94	1.937	0.078
LS LT Cycle Oil	1.96	1.96	1.959	0.078

## OPIS SPOT ULSD

LOCATION	MEAN (\$/gal)	MEAN (\$/mt)	DIFF TO NYMEX (\$/gal)	DIFF TO NYMEX (\$/mt)
Gulf Coast	1.9789	619.198	-0.0825	-25.814
New York Harbor Barge	2.0554	643.135	-0.0060	-1.877
Los Angeles*	2.1227	664.177	0.0613	19.165
Pacific Northwest	1.9964	624.674	-0.0650	-20.339

\* ULS No.2

## Energy Futures

## ICE BRENT 16:30 SINGAPORE MARKER (\$/bbl)

MONTH	PRICE	CHANGE
March	68.28	1.87
April	67.54	1.85
May	66.85	1.80

## ICE BRENT 16:30 UK MARKER (\$/bbl)

MONTH	PRICE	CHANGE
March	67.82	1.92

## ICE BRENT SETTLE (\$/bbl)

MONTH	PRICE	CHANGE
March	68.60	2.35
April	67.76	2.20
May	67.05	2.08

## ICE LS GASOIL SETTLE (\$/mt)

MONTH	PRICE	CHANGE
January	625.50	10.00
February	625.50	10.25
March	623.00	10.25

## NATURAL GAS (\$/mmBtu)

MONTH	PRICE	CHANGE
February	2.130	0.008
March	2.112	0.019
April	2.113	0.015

## NYMEX WTI CRUDE OIL (\$/bbl)

MONTH	PRICE	CHANGE
February	63.0500	1.8700
March	62.8200	1.8700
April	62.4800	1.8400

## NYMEX ULSD (cts/gal)

MONTH	PRICE	CHANGE
February	206.1400	3.7300
March	205.9300	3.9500
April	204.5500	4.0200

## ASIA PRODUCTS

**HANWEI WU**  
 +(65) 6439 6284  
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## EUROPE PRODUCTS

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## Resids Mixed as WTI Jumps

February WTI surged \$1.87/bbl to \$63.05/bbl today, while residual fuel prices varied.

On the East Coast, physical 1% sulfur resid for Jan. 20-24 timing was offered at \$80.75/bbl, delivered, with no trades confirmed.

At the Gulf Coast, 3% sulfur resid was marked at \$46.00-\$46.10/bbl, based on an downward move of \$1.00/bbl in 3% swaps values.

Swaps on the East Coast for 1% sulfur were last seen at January \$77.20/bbl (up \$1.10/bbl), February \$74.95/bbl (up \$2.10/bbl) and March \$73.20/bbl (up \$2.10/bbl). Swaps on the Gulf Coast for 3% sulfur were last seen at January \$41.50/bbl (down \$1.00/bbl), February \$41.55/bbl (up \$0.70/bbl) and March \$41.20/bbl (up \$1.10/bbl).

U.S. fuel oils stocks fell by 1.9 million bbls, or 6%, to 30 million bbl, for the week ending December 27, according to the U.S. Energy Information Administration in its weekly petroleum report. The largest stock draw came in the U.S. Gulf Coast, which were lower by 900,000 bbl, or 4.9%, to 17.5 million bbl.

Domestic demand, as measured by the EIA as products supplied to the market, rose by 107,000 b/d, or 57.8%, to 292,000 b/d, while production fell by 19,000 b/d, or 7%, to 252,000 b/d.

## Spread Widens Between HSFO and VLSFO as IMO 2020 Starts

The spread between VLSFO and HSFO in the Rotterdam barge market has widened on the first day of IMO 2020.

The IMO compliant VLSFO barge price is now trading at a higher premium to HSFO. The spread has widened to \$314/ton on Thursday, compared to \$305/ton on Tuesday and \$264/ton at the start of December, according to OPIS data.

The International Maritime Organization's (IMO) 0.5% global sulfur cap on marine fuels came into effect on Jan. 1.

IMO rules mandate that ship operators lower emissions by burning fuel with maximum sulfur content of 0.5%, down from 3.5%, or add exhaust scrubber systems.

From March 1, ships without scrubbers installed won't be allowed to carry fuel exceeding 0.5% in their fuel tanks.

Analysts at the SEB bank expect close to 3,500 scrubber ships on the water on average in 2020. The scrubber count is likely to rise to between 4,500-5,500 ships by 2021.

Ports in the European region have reported multiple cases of high and off-spec sediment marine fuels that are not compliant with IMO fuel regulations, according to Fobas, the fuel verification company owned by Lloyd's Register.

A number of cases have been detected of VLSFO fuels with the incorrect specification being sold at ports in the ARA region. The defective fuels with high sediments can result in excessive sludge deposition in tanks which could lead to engine and turbocharger damage.

The average VLSFO-HSFO spread in the four major bunkering ports Singapore, Rotterdam, Houston and Fujairah is currently \$356/mt, according to analysts at Artic Security in a note.

"These spreads should certainly favour vessels with scrubbers, and applying the average spread of \$356/mt, we calculate net scrubber savings of \$15.5k/d for VLCCs and \$13.2k/d for Capesizes," it added.

Market sources are expecting a surplus of HSFO supply and ongoing reduction of prices as shipowners switch to VLSFO to comply with IMO regulations.

The IMO estimates that the new limit of 0.5% sulfur content compared with the previous limit of 3.5% will cut sulfur oxide emissions from ships by 77%, or an annual reduction of about 8.5 million tons. --Stacy Irish, stacy.irish@ihsmarkit.com

## Ships With Scrubbers Could Rise to 4,500 in 2020, SEB Bank Says

The number of ships with exhaust scrubber systems will rise to between 4,000 and 4,500 by the end of this year, up from 3,500 ships at the start, according to SEB Bank in a note.

The International Maritime Organization's (IMO) global sulfur cap on marine fuels mandates that ships operators lower emissions by burning fuel with a maximum sulfur content of 0.5%, down from 3.5%, or add exhaust scrubber systems.

"A little more than a year ago we expected 1,600 scrubber ships on the water on average in 2020. Today, this number looks more likely to be close to 3,500 scrubber ships," Bjarne Schieldrop, chief analyst, commodities, at SEB Bank said in a research note.

Ship owners can purchase HSFO and use scrubbers or use VLSFO as an alternative fuel.

The scrubber count is likely to rise by some 1,000-2,000 ships during 2021, bringing the average scrubber count between 4,500 and 5,500 ships. The bank expects HSFO consumption of 800,000 b/d in 2020 and 1.1 million b/d in 2021.

"The price of HSFO will be lower than VLSFO and the economics may still be good enough for new build installations of scrubbers," he said.

"The competitive pressure may also force further scrubber installations. Scrubbers are also likely to become cheaper and cheaper to install as time passes by," he added. --Stacy Irish, stacy.irish@ihsmarkit.com