

ICE Brent Futures at 16:30

Brent Crude Oil (\$/bbl)		
Month	Price	Change
JUL	74.93	-0.28
AUG	74.75	-0.23
SEP	74.43	-0.20

Energy Futures at Settlement

WTI Crude Oil (\$/bbl)		
Month	Price	Change
JUN	71.05	-0.06
JUL	71.04	-0.05
AUG	70.82	-0.09

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SPOT MARKET QUIET AS IMPORTS FLOW IN

The CIF ARA propane swap for June was marked at \$430/mt inside the 4:00-4:30 p.m. BST timeframe, up by \$4/mt. The inter-month propane swap spread for June-July ended steady at a \$4/mt contango.

In the physical CIF ARA propane market no activity was seen for a second session. The value to market was less deep, confirmed by a market source as "... for sure at least -10 [to] -15."

OPIS assessed the CIF ARA propane large-cargo sector at -\$12.50/mt to June quotes. In the large-cargo butane sector no activity was seen, leaving the OPIS assessed price for butane steady at 76% to May naphtha quotes.

Record monthly LPG imports to NW Europe in April at an estimated 650,000 metric tons have been followed in May by a further 590,000 tons according to OPIS data. Taken as a whole, at some 1.2 million tons, the imports equate to an average 20,000 tons per day across April and May. The imports are some 27% and 14% higher than for April and May 2022 respectively.

At the mid-May point, outright CIF ARA propane has reached a low for the year at \$405/mt, with contango in the market through to the end of the year according to futures prices. At the same time, \$405/mt is a price at which the netback to the U.S. Gulf Coast broadly moved into the negative Tuesday, leaving no margin for terminalling fees and leaving the economics for further imports less profitable.

Over 90% of LPG imports to NW Europe for May are destined for the feedstock pool. A combination of deep discounts to naphtha for propane and butane and continued reduced availabilities from the North Sea have been the spur for the higher level of imports. The

(Continued on Page 3)

OPIS LPG Settle Prices (\$/mt)

Location	Low	High	Mean	Change	MTD Avg
Propane CIF ARA	415.50	419.50	417.50	+12.00	425.500
Butane CIF ARA (+4,000mt)	435.00	439.00	437.00	+4.50	443.500
Propane FOB Med	463.00	467.00	465.00	+10.00	476.500
Butane FOB Med	388.00	392.00	390.00	+5.00	414.400

OPIS CIF ARA Propane Swaps (\$/mt)

	Mean	Change
June 4:00-4:30pm	430.00	+4.00
Physical-Paper Differential	-12.50	+8.00

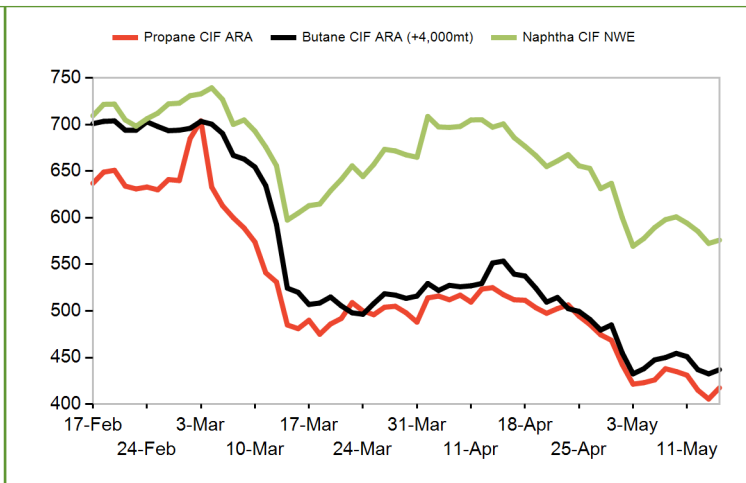
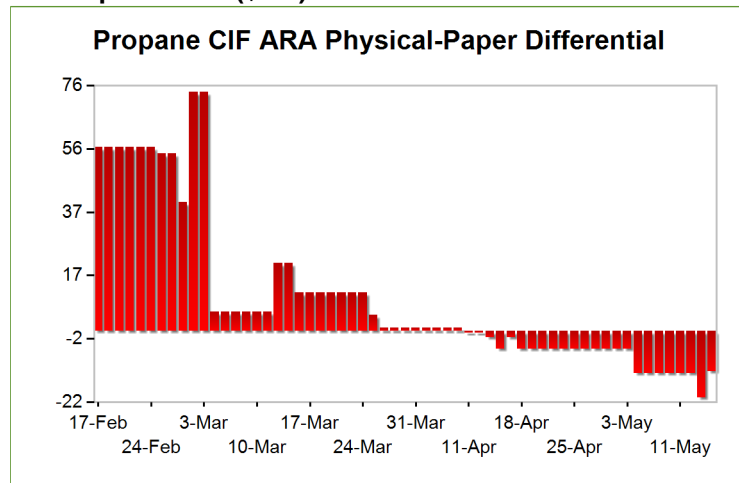
OPIS LPG Mont Belvieu Snapshot (\$/mt)

Location	Mean	Change	MTD Avg
Mont Belvieu Non-TET Propane	331.49	-2.61	348.123
Mont Belvieu Non-TET Butane	328.43	-2.83	346.185

OPIS Naphtha Settle Prices (\$/mt)

	Mean	Change	MTD Avg	Diff to Flat Price
Naphtha CIF NWE (4:00-4:30pm UK time)	576.00	3.50	586.425	-- --
Open-Spec Naphtha	574.00	3.50	584.425	-2.00
Paraffinic Naphtha	619.00	3.50	629.425	43.00

OPIS Spot Prices (\$/mt)



OPIS Europe LPG & Naphtha Report

16 May 2023

OPIS Global Spot LPG Prices (\$/mt)		Propane		Butane	
	Date	Price	Change	Price	Change
CIF ARA	16-May-2023	417.50	+12.00	437.00	+4.50
CFR Japan	16-May-2023	511.75	+4.50	504.75	+6.50
Mont Belvieu Non-TET	15-May-2023	325.30	-6.84	325.59	-7.36
FOB Arab Gulf	16-May-2023	463.00	+2.00	456.00	+4.00

OPIS 44,000mt VLGC Freight Rates (\$/mt)

Route	Rate	Change	NWE C3 Netback	NWE C4 Netback	Route	Rate	Change	NWE C3 Netback	NWE C4 Netback
AG - Japan	97.00	+2.50	-- --	-- --	USGC - NWE	84.50	+1.00	333.00	352.50

May LPG Posted Prices (\$/mt)

	Propane		Butane	
	Price	Change	Price	Change
Saudi Arabia FOB	555.00	0.00	555.00	+10.00
Algeria FOB	485.00	-10.00	490.00	-20.00
North Sea	464.50	-12.00	470.00	-23.00

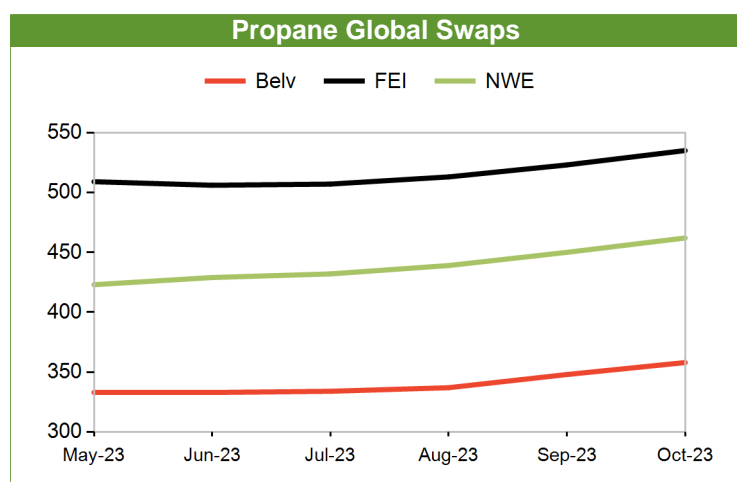
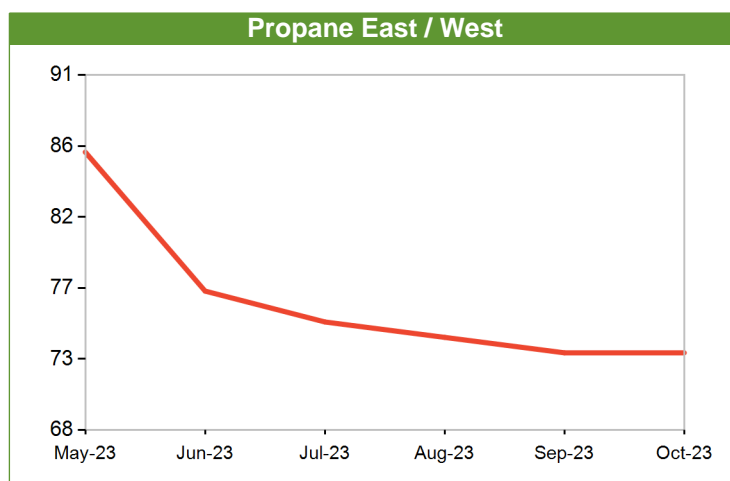
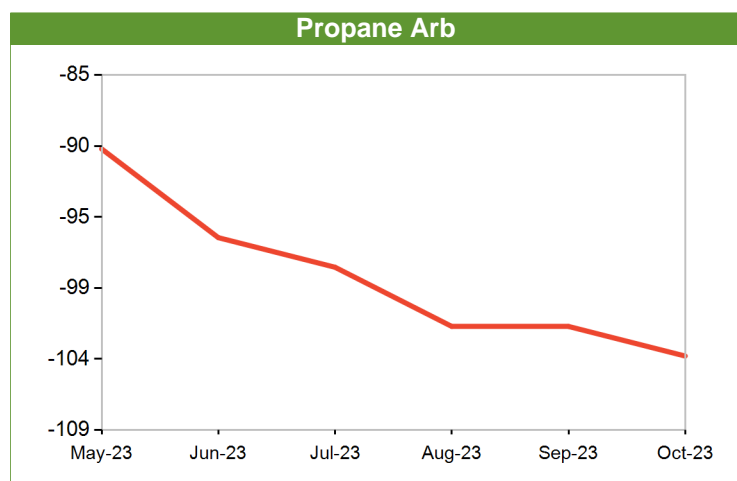
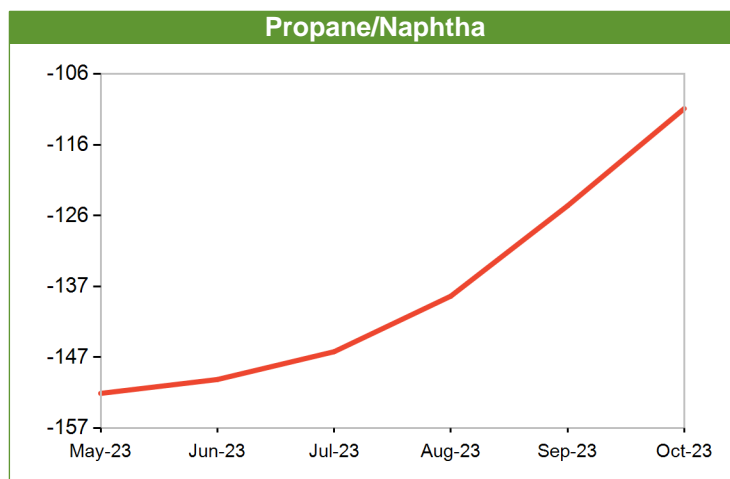
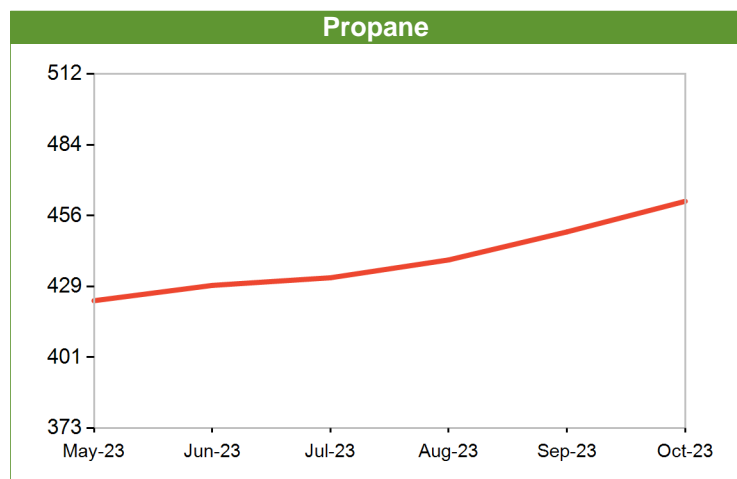
OPIS End of Day NWE Forwards Prices (\$/mt)

Month	Min	Max	Mean	Change	Time Spread	Pro/Nap	Naphtha	Change
MAY 2023	421.00	425.00	423.00	+4.00	-6.00	-152.00	575.00	+6.00
JUN 2023	427.00	431.00	429.00	+3.00	-3.00	-150.00	579.00	+4.00
JUL 2023	430.00	434.00	432.00	+2.00	-7.00	-146.00	578.00	+1.00
AUG 2023	437.00	441.00	439.00	+2.00	-11.00	-138.00	577.00	0.00
SEP 2023	448.00	452.00	450.00	+2.00	-12.00	-125.00	575.00	-1.00
OCT 2023	460.00	464.00	462.00	+1.00	-9.00	-111.00	573.00	-2.00
NOV 2023	469.00	473.00	471.00	+1.00	-2.00	-99.00	570.00	-3.00
DEC 2023	471.00	475.00	473.00	+2.00	+2.00	-94.00	567.00	-4.00
JAN 2024	469.00	473.00	471.00	+2.00	+6.00	-94.00	565.00	-4.00
FEB 2024	463.00	467.00	465.00	+3.00	+19.00	-98.00	563.00	-4.00
MAR 2024	444.00	448.00	446.00	+1.00	+18.00	-114.00	560.00	-4.00
APR 2024	426.00	430.00	428.00	-1.00	+5.00	-128.00	556.00	-4.00
MAY 2024	421.00	425.00	423.00	-1.00	-- --	-131.00	554.00	-4.00
Q2 2023	424.00	428.00	426.00	+3.00	-14.00	-151.00	577.00	+5.00
Q3 2023	438.00	442.00	440.00	+1.00	-29.00	-136.00	576.00	-1.00
Q4 2023	467.00	471.00	469.00	+1.00	+8.00	-101.00	570.00	-3.00
Q1 2024	459.00	463.00	461.00	+2.00	+36.00	-102.00	563.00	-4.00
Q2 2024	423.00	427.00	425.00	0.00	-- --	-129.00	554.00	-4.00
CAL 2023	445.00	449.00	447.00	+1.00	+9.00	-127.00	574.00	0.00
CAL 2024	436.00	440.00	438.00	0.00	-- --	-113.00	551.00	-6.00

OPIS Global Propane Forward Prices (\$/mt)

Month	Belv.	Change	Arb	CP	Change	FEI	Change	E/W
MAY 2023	333.00	0.00	-90.00	-- --	-- --	509.00	+1.00	+86.00
JUN 2023	333.00	0.00	-96.00	487.00	0.00	506.00	+1.00	+77.00
JUL 2023	334.00	-1.00	-98.00	481.00	0.00	507.00	+1.00	+75.00
AUG 2023	337.00	0.00	-102.00	483.00	+1.00	513.00	+1.00	+74.00
SEP 2023	348.00	0.00	-102.00	491.00	+1.00	523.00	+1.00	+73.00
OCT 2023	358.00	0.00	-104.00	503.00	+1.00	535.00	0.00	+73.00
NOV 2023	365.00	+1.00	-106.00	512.00	+1.00	544.00	0.00	+73.00
DEC 2023	368.00	+1.00	-105.00	516.00	0.00	545.00	+1.00	+72.00
JAN 2024	370.00	+1.00	-101.00	516.00	0.00	541.00	0.00	+70.00
FEB 2024	368.00	+1.00	-97.00	509.00	-1.00	532.00	+1.00	+67.00
MAR 2024	355.00	+1.00	-91.00	490.00	-1.00	511.00	+1.00	+65.00
APR 2024	341.00	0.00	-87.00	470.00	-2.00	490.00	0.00	+62.00
MAY 2024	337.00	+2.00	-86.00	461.00	-3.00	483.00	-1.00	+60.00
Q2 2023	333.00	0.00	-93.00	487.00	0.00	507.00	+1.00	+81.00
Q3 2023	340.00	0.00	-100.00	485.00	+1.00	514.00	+1.00	+74.00
Q4 2023	364.00	+1.00	-105.00	510.00	+1.00	542.00	+1.00	+73.00
Q1 2024	364.00	+1.00	-97.00	505.00	0.00	528.00	+1.00	+67.00
Q2 2024	338.00	+1.00	-87.00	462.00	-2.00	484.00	-1.00	+59.00
CAL 2023	347.00	0.00	-100.00	496.00	+1.00	523.00	+1.00	+76.00
CAL 2024	350.00	+3.00	-88.00	470.00	-2.00	497.00	-1.00	+59.00

OPIS 6-Month Forward Curve (\$/mt)



(Continued from Page 1)

June spread for propane/naphtha ended at -\$150/mt from -\$152/mt, while butane has been similarly lower to naphtha, ending Tuesday at -\$140/mt. The spreads for May have maintained similar levels to these since the start of the month.

In the North Sea, LPG exports reached 170,000 tons at the mid-month point. Although still down on more typical monthly volumes, May exports have been seen to tick slightly higher. Since late 2021, a portion of LPG produced in the North Sea has been re-injected into the natural gas stream where it has been finding more value on a heat equivalent basis. This week however has seen CIF ARA butane break through parity into the positive against natural gas, while propane continues to find more value inside the gas stream.

The Dutch ICE futures TTF price, indicative of European natural gas prices, averaged the equivalent of \$9.40/MMBtu, down by 10cts/MMBtu, according to ICE data. CIF ARA propane equated to \$8.70/MMBtu, no change day to day, and CIF ARA butane at \$9.50/MMBtu, also no change on day, and now narrowly above TTF natural gas futures.

CIF ARA BUTANE 76% TO MAY NAPHTHA

NO PHYSICAL ACTIVITY

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OPIS Europe LPG & Naphtha Report Methodology

OPIS assesses daily spot propane and butane and naphtha prices at the key trading hubs in northwest Europe and the Mediterranean region. Editors record and confirm deals, bids and offers, analyse supply and demand fundamentals, and gauge market sentiment and outlook. Prices are quoted in US dollars per metric ton. Times quoted are that of the United Kingdom.

In the northwest European propane market, OPIS assesses cargoes CIF basis Flushing for 10-25 days forward delivery. The grade and quality, delivery and nomination terms are based on the prevailing, industry-accepted forward contract, such as the TOT contract. Positions referencing alternative forward delivery contracts will be considered if the dates fall into the 10-25 day forward delivery range. The volume for the assessment of CIF ARA Propane cargoes in the OPIS Europe LPG & Naphtha Report is a nominal 22,000 metric tons with a plus/minus 5% tolerance. The cargo quantity range considered for assessment will therefore be 20,900 – 23,100 metric tons in the seller's option.

Butane prices are for field grade mixed butane cargoes above 4,000mt delivered 10-25 days forward basis CIF ARA.

In the Mediterranean, OPIS assesses field grade and refinery grade propane and butane FOB basis Lavera 5-15 days forward. Cargo sizes are 1,500mt and above.

The physical flat naphtha price assessment is based on public physical spot deals transacted between 4:00-4:30pm London time. The delivery period assessed is a forward 10-25 delivery window basis CIF NWE, also termed CIF Rotterdam. The typical cargo size for assessment purposes will be in the range 12.5-25kt and deals done in larger volumes may at times be included at the discretion of the editor.

OPIS assesses on a full day basis for the Open Spec and for Paraffinic grade (LVN) naphtha (basis min 80% paraffins).

For further details on the LPG or naphtha methodology see www.opisnet.com/about/methodology.aspx

OPIS contacts a cross-section of market participants daily. Information published is according to the best available data on the day and is subject to change. Please direct any enquiries to energy@pedseurope@opisnet.com

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NWE LPG IMPORTS

MAY

- Clermont, ex MHK, Idg early-May, est. 46kt LPG, ETA Stenungsund 23 May
- BW Mindoro, ex Houston, Idg early-May, est. 46kt LPG, ETA Porvoo 23 May
- Sarv Shakti, ex MHK, Idg early-May, est. 46kt LPG, ETA Terneuzen 20 May
- Navigator Genesis, ex Houston, Idg early-May, est. 12kt LPG, ETA Rotterdam 19 May
- Chinook, ex MHK, Idg early-May, est. 46kt LPG, arr Terneuzen 15 May
- Clipper Neptun, ex Trinidad, Idg early-May, est. 34kt LPG, arr Antwerp 12 May
- Clipper Vanguard, ex Houston, Idg late-April, est. 46kt LPG, arr Immingham 11 May
- BW Tucana, ex Houston, Idg mid-April, est. 46kt LPG, arr Porvoo 10 May, arr Stenungsund 14 May
- BW Tokyo, ex Houston, Idg late-April, est. 46kt LPG, arr Antwerp 9 May
- Oriental Jubilee, ex MHK, Idg late-April, est. 46kt LPG, arr Terneuzen 8 May
- Permian Lady, ex MHK, Idg late-April, est. 20kt LPG, arr Antwerp 8 May
- Myklebust, ex MHK, Idg late-April, est. 20kt LPG, arr Rafnes 7 May
- G Forever, ex MHK, Idg late-April, est. 46kt LPG, arr AGT 15 May
- Cheyenne, ex Houston, Idg mid-April, est. 46kt LPG, arr Antwerp 5 May
- Mercator, ex Houston, Idg mid-April, est. 46kt LPG, arr Flushing 4 May

NWE LPG EXPORTS

MAY

- Navigator Yauza, ex Fawley, Idg mid-May, est. 12kt LPG, ETA TBD
- Kingston, ex Brofjorden, Idg early-May, est. 5kt LPG, ETA Dakar 18 May

**unconfirmed

--Dermot McGowan, dmcgowan@opisnet.com (Europe LPG)

FOB U.S. GULF COAST LPG
 FOB USGC PROPANE H2 JUN LOW / HIGH / MEAN
 5.000/5.500/5.250
 FOB USGC PROPANE H1 JUL LOW / HIGH / MEAN
 5.000/5.500/5.250

FOB U.S. Gulf Coast propane resale values on Tuesday held steady for the second half of June, with first-half July pegged the same, as activity continued to stagnate.

OPIS assessed the two periods at 5-5.5cts/gal over Mont Belvieu based on market feedback.

Deals have been sparse lately, although sources have noted that there are some open slots available for the end of June.

The three OPIS-assessed freight routes increased once again, with AG-Japan up \$2.50/t to \$97/t, Houston-Flushing

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up \$1/t to \$84.50/t and Houston-Chiba via the Panama Canal up \$0.50/t to \$141.50/t. Some sources noted there is a scarcity of available VLGCs at present, with none seen in the Arab Gulf and only a small number open in the U.S. and the East.

These three routes have each risen or held steady over the past 10 sessions, according to OPIS pricing data. Since May 2, AG-Japan has climbed 33.8%, Houston-Flushing increased 12.7% and Houston-Chiba picked up 9.7%.

Implied netbacks widened on Tuesday, showing favorable values for U.S. cargoes into Asian markets at 7.5cts/gal for H2 June and 8.5cts/gal for H1 July, each up almost 2cts. Netbacks into Europe only firmed up a fraction of a cent to 2.375cts/gal for each period.

--Jessica Marron, jmarron@opisnet.com (FOB USGC)

NAPHTHA UP AS BRENT DOWN

The June CIF NWE naphtha swap ended at \$579/mt inside the 4:00 to 4:30 p.m. BST timeframe, up by \$4/mt. Brent crude for July lost half a dollar on the day to end at \$74.93/bbl at 4:30 p.m. U.K. time on ICE.

The naphtha crack spread for May tightened ending at -\$10.23/bbl, from -\$11.23/bbl. The EBOB crack for May was up by 63cts/bbl to +\$19.75/bbl on day.

The East/West spread for naphtha narrowed to +\$7/mt from +\$11.25/mt.

OPIS assessed the naphtha flat price at \$576/mt, equivalent to -\$3/mt to June reference month quotes.

Outright gasoline for May ended at \$787/mt, up by \$2/mt. The gasoline/naphtha spread for the same month narrowed by \$4/mt to +\$212/mt.

OPIS marked Open Specification Naphtha (OSN) was unchanged at -\$2/mt to flat. The premium to flat for paraffinic naphtha was unchanged at +\$43/mt.

--Dermot McGowan, dmcgowan@opisnet.com (Naphtha)

U.S. ETHANE PRICES DELIVERED NORTHWEST EUROPE RISE

Notional CIF NWE Ethane ex-Marcus Hook -- \$277.86/mt, up by \$14.13/mt.

Notional CIF NWE Ethane ex-Morgan's Point -- \$328.16/mt, up by \$7.44/mt.

--Dermot McGowan, dmcgowan@opisnet.com (Ethane)

BOREALIS 625,000 MT/YEAR ETHYLENE CRACKER IN SWEDEN ONLINE AFTER TURNAROUND

Borealis has resumed operations at its 625,000 metric ton/year ethane, propane and butane (EPB)-fed cracker in Stenungsund, Sweden, after maintenance work was completed earlier this month, a company spokesperson told OPIS Tuesday.

"We are back in normal operations in Stenungsund after completion of the planned maintenance," the spokesperson said.

Maintenance started at the ethylene cracker on April 10 and the plant was expected to resume operations during the week beginning May 8, according to Borealis.

The mixed-feed cracker, situated outside Gothenburg in the Southwest of Sweden, produces 250,000 mt/year of propylene, according to data from Chemical Market Analytics by OPIS, a Dow Jones company.

Borealis uses ethylene and propylene from the Stenungsund plant as raw materials to produce high-density and low-density polyethylene. It also operates a 380,000 mt/year cracker in Porvoo, Finland, which will undergo maintenance in the third quarter of this year, along with the benzene and polyolefin units, Borealis told OPIS.

Borealis is owned by Austrian-based energy major OMV (75%) and Abu-Dhabi investment firm Mubadala (25%).

--Reporting by Fahima Mathé, fmathé@opisnet.com; Editing by Rob Sheridan, rsheridan@opisnet.com

EU'S BORRELL CALLS ON MEMBERS TO STOP BUYING RUSSIAN OIL REFINED IN INDIA

Josep Borrell, the European Union's chief diplomat, said that EU member states should act to halt oil imports from India that are refined from Russian crude.

The High Representative of the Union for Foreign Affairs and Security Policy told the Financial Times that EU countries "have to take measures" if diesel and gasoline produced with Russian oil is entering Europe from India.

The European Union has banned imports of seaborne Russian crude oil and refined products in response to the invasion of Ukraine. But countries such as India have stepped in to take advantage of discounted Russian crude prices, which it buys, refines and exports to the West.

The International Energy Agency said Tuesday that Russian crude exports rose to an 11-month high in April despite the sanctions, with China and India taking 2.1 and 2 million barrels/day, respectively, around 80% of Russia's total exports.

"That India buys Russian oil, it's normal. And if, thanks to our limitations on the price of oil, India can buy this oil much cheaper, well the less money Russia gets, the better. But if they use that in order to be a centre where Russian oil is being refined and by-products are being sold to us? ... we have to act," Borrell said, according to the FT.

Finland-based Centre for Research on Energy and Clean Air (CREA) said in a report published in April that China, India, Turkey, United Arab Emirates and Singapore have become the main importers of Russian crude since the West's sanctions kicked in. Refined oil product exports from these five countries to the West increased by 26% in the year after the invasion.

To stop this from happening, CREA recommended banning imports from refineries receiving Russian crude, or alternatively requiring companies to provide documentation showing that the origin of the crude was not Russian.

The Financial Times is owned by Japanese media group Nikkei.

--Reporting by Jaime Llinares Taboada, jllinares@opisnet.com; Editing by Rob Sheridan, rsheridan@opisnet.com

LOW CARBON SECURES \$676 MILLION IN FUNDING FOR UK, EUROPE SOLAR PV EXPANSION

Low Carbon, a privately-owned U.K. investment and asset management company, said Tuesday it has now secured a total investment of £540 million (\$676 million) to build a solar PV network across the U.K. and the wider European region.

The total investment has grown due to Low Carbon securing an extra £310 million in debt financing for an additional 448 megawatts of solar PV capacity, which brings its total solar PV pipeline under construction in the region to approximately 1 gigawatt (GW).

Low Carbon's solar PV pipeline under construction in the U.K. and Europe is supported by funding from ABN AMRO, ING, the Commonwealth Bank of Australia and Intesa Sanpaolo, as well as investment from NatWest, Lloyds Bank and AIB.

Low Carbon claims the 1GW solar PV capacity will provide enough renewable energy for approximately 350,000 homes, reducing the amount of carbon dioxide equivalent emitted by 300,000 metric tons.

"Deploying nearly 1GW of solar PV capacity will play a significant role in helping us to deliver our strategic goal of creating 20GW of new renewable energy capacity by 2030," Low Carbon chief executive officer Roy Bedlow said in a statement.

--Reporting by Rob Sheridan, rsheridan@opisnet.com; Editing by Anthony Lane, alane@opisnet.com