

India | Equity Research | Sector Update

26 July 2023

## Oil & Gas

# Muted price trends for crude and LNG may not last; spike to be smaller than CY22 levels

The data from LNG markets (link to latest IGU LNG note <u>here</u>) suggests a huge influx of export capacity over the next 5 years, with the US leading the way in both confirmed projects (FID cleared) as well as anticipated projects (pre-FID) for liquefaction capacity over CY23-28E. As per the recent update on the LNG market by the International Gas Union (IGU) (link), global liquefaction capacity of 478.4mt is set to expand meaningfully over the next 5-6 years, with a cumulative 997mt of projects in planning + development. CY22 saw final approvals of 25mt of liquefaction capacity vs 50mt in CY21 and at this rate only ~125-150mt of new approvals are likely in the next 5 years. In crude markets as well, supply tightness remains significant, with gradual Chinese demand momentum to drive prices higher.

## Demand estimates remain strong

The expansion plans for CY23E contrast with a 25mt expansion in overall LNG traded in CY22 and similar levels of growth expected over the next few years. We would, therefore, submit that with all the worries about European storage being comfortable, lack of sufficient Chinese and Indian demand and recession worries, demand-supply remains fairly balanced and we would continue to build steady increase in spot LNG prices over the next few years.

## Prices will rise, not as much as last year!

Our contention on term prices (typically linked as a % of Brent crude prices) is of a steady increase as well, with crude price data suggesting inventory shortages across major storage hubs is starting to pile up, with some signs of a recovery in Chinese demand and the resumption of OPEC+ supply cuts to drive a gradual bump in crude prices over the rest of CY23e.

## Demand-supply remains fairly balanced!

Overall, the balance of demand-supply across oil & gas sector suggests a narrow, albeit rising trend for both commodities over the next 12 months. Our estimates have consistently been higher than CME futures prices for both oil and gas and while the muted trends for both commodities have lasted a tad longer than what we were estimating earlier, longer-term trends still hold. Our estimates for crude prices of US\$80-85/bbl, term LNG prices of US\$11-12/MMBtu and spot LNG prices of US\$16-18/MMBtu stay unchanged.

## Some risks remain to our base case assumptions

We see a couple of key risks to these estimates –

Upside risks to prices: i) A sudden swing in weather in Europe, ii) resurgence of demand momentum from China and iii) supply-related issues (which have been fairly common in recent years) can drive prices higher.

Downside risks: i) Severe demand weakness over the next 12 months, ii) resurgence of production from Iran + Brazil + Venezuela, iii) non - compliance with OPEC + production quotas.

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# Healthy addition to global liquefaction capacity in CY22

A total of 19.9 MTPA of liquefaction capacity was added in CY22, boosting global liquefaction capacity to 478.4 mt as of end-CY22. The average global utilisation rate in CY22 was 89%, compared to 80.4% in CY21. This was due to an increase in LNG imports in Europe to offset the significant drop in Russian pipeline gas volumes to Europe.

In CY22, 25.2mt of liquefaction capacity was approved, down materially from 50mt in CY21. 19.9 mt of liquefaction capacity was actually brought online in CY22.

Exhibit 1: Approved liquefaction capacity declined to 25.2 mt in CY22 compared to capacity approved in CY21 (50mt)

Country	Plant	mt
US	Venture Global's Plaquemines LNG T1-T18	10
US	Corpus Christi LNG Stage 3 T1-T7	10
Mexico.	Altamira FLNG	2.8
Congo	FLNG unit	2.4
Total		25.2

Source: IGU CY23, I-Sec research

Exhibit 2: New liquefaction commenced operation in CY22 to reach a global total of 478.4 mt

Country	Train	mt	Operational
US	Sabine Pass LNG T6	5	Feb-22
US	Calcasieu Pass LNG T1-T18	10	May-22
Russia	Portovaya LNG T1	1.5	Nov-22
Mozambique	Coral South FLNG	3.4	Nov-22
Total		19.9	

Source: : IGU CY23, I-Sec research

## Massive expansion in global liquefaction capacity in prospect

As of Apr'23, 178.3 MTPA of liquefaction capacity is either under construction or approved for development. In the first quarter of CY23, two liquefaction projects in the US, with a combined capacity of 23.5 mt, took a Final Investment Decision (FID). The projects in active development do not include a couple of large projects on the anvil. Specifically, the large developments in Mozambique, which can support as much as ~50mtpa of liquefaction capacity (only 3mtpa of projects in active development, with another 32mt thought of as proposed capacity).

Exhibit 3: As of Apr'23, liquefaction capacity: either under construction or approved for development

Country	MT
United States	59.1
Russia	32.8
Qatar	31.2
Canada	14
Mozambique	12.9
Nigeria	8
Mexico	6.1
Australia	5
Indonesia	3.8
Congo	3
Mauritania	2.5
Total	178.4

Source: : IGU CY23, I-Sec research



However, despite material expansion plans, we note supply plans cannot absorb the record additions to global regasification demand over the last 2 years. The Russia–Ukraine conflict and the associated upheaval in the global gas markets have driven an unprecedented ~25mt growth in CY22 traded LNG volumes. With fresh liquefaction capacities still likely to average ~20-22mt annually, demand growth may need to keep up a run-rate of 22-25mt annually for the next couple of years to match the demand.

Exhibit 4: Global operational liquefaction capacity reached 478.4mt in CY22

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Country	Mt	MS
United States	88.1	18%
Australia	87.6	18%
Qatar	77.1	16%
Malaysia	32	7%
Russia	29.1	6%
Indonesia	26.5	6%
Algeria	25.5	5%
Nigeria	22.2	5%
Trinidad and Tobago	14.8	3%
Egypt	12.2	3%
Oman	10.4	2%
Brunei	7.2	2%
Papua New Guinea	6.9	1%
Yemen	6.7	1%
UAE	5.3	1%
Angola	5.2	1%
Peru	4.45	1%
Norway	4.3	1%
Equatorial Guinea	3.7	1%
Mozambique	3.4	1%
Libya	3.2	1%
Cameroon	2.4	1%
Total	478.4	

Exhibit 5: Global proposed liquefaction capacity reached 997.1mt by end of Apr'23

Country	Mt	MS
United States	333.0	33%
Canada	229.6	23%
Russia	137.0	14%
Mexico	48.8	5%
Australia	45.5	5%
Iran	36.8	4%
Mozambique	32.2	3%
Nigeria	27.8	3%
Qatar	15.6	2%
Papua New Guinea	10.6	1%
Indonesia	10.3	1%
Tanzania	10.0	1%
Senegal	10.0	1%
Djibouti	10.0	1%
UAE	9.6	1%
Mauritania	7.5	1%
Israel	5.0	1%
Peru	4.5	0%
Iraq	4.5	0%
Equatorial Guinea	4.4	0%
Malaysia	2.5	0%
Cyprus	2.0	0%
Total	997.1	

Source: : IGU CY23 I-Sec research

Source: : IGU CY23, I-Sec research

Global LNG trade grew 6.8% in CY22 to 401.5mt. The major contribution in the growth was from US, Russia and Qatar with increase in LNG trade by 10.5mt, 3,4mt and 3.1mt, respectively. In CY22, Japan stood as the largest LNG importer with volume of 73.6mt (-1.3mt vs CY22) and China stood as the second largest LNG importer with 63.7mt (15.2mt decline in imports vs CY22). This was mainly due to a slowdown in China on account of covid-related lockdowns.

Exhibit 6: Top 10 LNG exports – 91% of total exports

LNG Exports by	mt	% Share
Australia	80.9	20.0%
United States	80.5	20.0%
Qatar	80.1	20.0%
Russia	33	8.0%
Malaysia	27.3	7.0%
Indonesia	15.7	4.0%
Nigeria	14.7	4.0%
Oman	11	3.0%
Algeria	10.5	3.0%
Trinidad and Tobago	8.8	2.0%
Total LNG exports	401.7	

Source: : IGU CY23, I-Sec research

Exhibit 7: Top 10 LNG imports – 78% of total imports

LNG Imports by	Mt	% Share
Japan	73.6	18%
China	63.7	16%
South Korea	47.1	12%
France	25.6	6%
Spain	21.1	5%
Chinese Taipei	20.3	5%
India	19.4	5%
United Kingdom	19.1	5%
Netherlands	12.4	3%
Turkey	11.4	3%
Total	401.7	

Source: : IGU CY23, I-Sec research



# IEA cuts demand estimates, but supply tightness due to OPEC supply cuts to drive prices

## IEA demand cut by 0.2mb/d in its latest update on markets

As per the latest estimates of IEA in its monthly oil market report (<u>July'23 report</u>), global oil demand is expected to rise by 2.2m/bd to reach 102.1mb/d by CY23. However, challenging macro environment, fall in manufacturing have led IEA to revise CY23 growth estimate lower by 220 kb/d. Buoyed by surging petrochemical use, China will account for 70% of global gains, while OECD consumption remains anaemic. Growth is likely to slow down to 1.1 mb/d in CY24 to 103.2mb/d.

While Chinese demand continues to surprise on the upside, a surge in domestic petrochemical activity has undermined steam cracker margins and activity elsewhere. Demand in OECD, and Europe in particular, is languishing amid a grinding slowdown in industrial activity.

#### Supply to remain tight for next 12 months

OPEC+ members have announced a cut in production quotas by >3mbpd and since Sept'22 it has steadily reflected in production as well. OPEC crude oil production has continued to decline from 29.9mn b/d in Aug'22 to 28.6mn b/d in Jun'23. Along with OPEC, other non-OPEC members have also announced a cut in production quotas.

**Exhibit 8: OPEC+ production quotas** 

(mn b/d)	Sept'22	Oct'22	Nov'22-Dec'23	Jan'24-Dec'24
Algeria	1.06	1.06	1.01	1.01
Angola	1.53	1.53	1.46	1.28
Congo	0.33	0.33	0.31	0.28
Eq. Guiena	0.13	0.13	0.12	0.07
Gabon	0.19	0.19	0.18	0.18
Iraq	4.66	4.65	4.43	4.43
Kuwait	2.82	2.81	2.68	2.68
Nigeria	1.83	1.83	1.74	1.38
Saudi Arabia	11.03	11	10.48	10.48
UAE	3.19	3.18	3.02	3.22
Total OPEC 10	26.75	26.69	25.42	24.99
Azerbaijan	0.72	0.72	0.68	0.55
Bahrain	0.21	0.21	0.2	0.2
Brunei	0.1	0.1	0.1	0.08
Kazakhstan	1.71	1.71	1.63	1.63
Malaysia	0.6	0.59	0.57	0.4
Mexico	1.75	1.75	1.75	1.75
Oman	0.88	0.88	0.84	0.84
Russia	11.03	11	10.48	9.83
Sudan	0.08	0.08	0.07	0.06
South Sudan	0.13	0.13	0.12	0.12
Non-OPEC	17.2	17.17	16.44	15.47
Total OPEC+	43.95	43.85	41.86	40.46

Source: OPEC, I-Sec research

The above production quotas do not reflect voluntary production cuts announced by Opec+ members in Apr'23 of ~1.2mbpd by Dec'24 (Saudi and Russia announced voluntary production cut of 0.5mbpd each and UAE by 0.144mbpd). Following this, Saudi Arabia's additional voluntary cut announced in Jun'23 of 1mbpd may happen by Dec'24. This should bring down Saudi's production quota from 10.5mbpd to 9mbpd and may further reduce available supplies for the rest of CY23.



Exhibit 9: Global oil demand supply: Likely to show higher supply deficit in H2CY23

mb/d	CY19	CY20	CY21	CY22	CY23E	CY24E
Demand	99.7	91.0	97.5	99.9	102.1	103.2
Supply	100.5	93.9	95.3	100.1	101.1	101.1
Non-OPEC	65.6	63.1	63.7	65.7	67.3	68.5
OPEC	34.9	30.8	31.6	34.5	33.8	32.6
NGL	5.4	5.2	5.2	5.4	5.5	5.5
Oil	29.5	25.7	26.4	29.1	28.3	27.1
Supply surplus/(deficit)	0.8	2.9	-2.2	0.2	-1.0	-2.1

Source: Bloomberg , OPEC, , I-Sec research

## Supply tightness starting to reflect in prices, somewhat...

As soon as the renewed quotas from Saudi Arabia kicked into place, crude prices started showing some momentum and some of this strength has reflected in product spreads and linked LNG prices as well.

We have seen average crude prices expand to USD 78.6/bbl levels in Jul'23 and assuming constant linkage of 13-14% for term LNG, the prices for contracted LNG may rise steadily over the next 12 months.

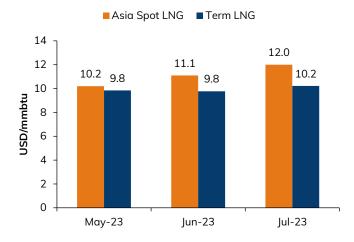
Similarly, while the market dynamics for spot LNG has become delinked somewhat from traditional pricing linkages to crude, trends in crude prices and demand prospects from Europe indicate an upward trajectory in spot prices as well over the next 12 months.

Exhibit 10: Crude price trends for last 3 months

80 ■ Brent Crude price ■ WTI 78.6 78 75.7 76 75.2 74.4 74 71.6 72 70.6 70 68 66 Jun-23 May-23

Source: Bloomberg. I-sec research

Exhibit 11: Term LNG, spot LNG prices for last 3 months



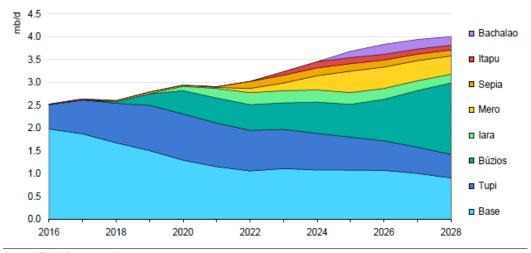
Source: Reuters , I-sec research,

# Additional production from Venezuela, Brazil and Iran creates an upside risk to supply estimates

Likely sanction relaxations for Iran, ramp up in exploration activity in Brazil and reentry of western O&G companies into Venezuela together can bring material supply additions over the next 3-5 years. Together these three regions can bring additional supply of ~0.9mb/d for CY24 vs CY22 and ~1.4mb/d for period CY28 vs CY22. On the other hand, Russia supply estimates have seen a material downgrade from pre-Ukraine conflict levels. We note that actual Russian crude availability has defied estimates over the last 12months, with decline of ~0.4mb/d over CY22-4MCY23 vs earlier estimates of ~1-2mb/d decline by western forecasters (link).

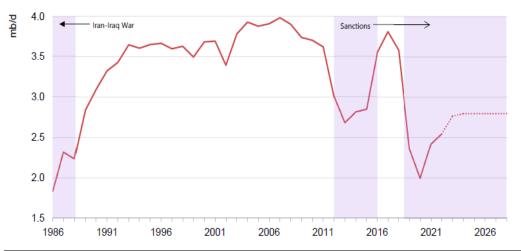


Exhibit 12: Búzios and Mero drive Brazilian growth through the decade



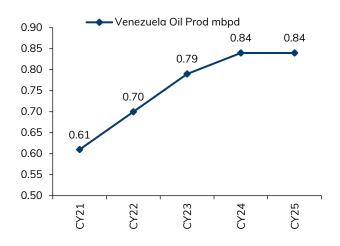
Source: IEA, I-Sec research

Exhibit 13: Iran crude oil production – strong upside potential if sanctions are withdrawn/relaxed



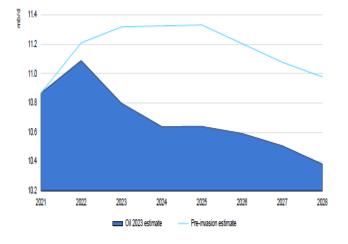
Source: IEA, I-Sec research

Exhibit 14: Venezuela oil production is expected to show steady improvement



Source: IEA, I-Sec research

Exhibit 15: Russia crude oil estimates have been downgraded post the conflict but actual data for CY22 has defied estimates



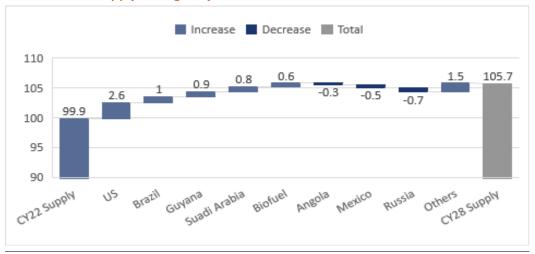
Source: IEA, I-Sec research



# US to be the largest incremental supplier of crude oil for CY22-28

As per IEA estimate, oil demand for CY22-CY28 to grow by 5.9 m b/d. On supply side, US would be the largest additional crude oil supplier with ~2.6 m b/d, followed by Brazil at ~1 m b/d for CY22-CY28.

Exhibit 16: Oil supply changes by countries from CY22-28



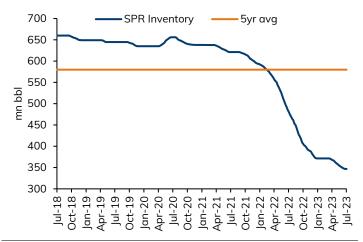
Source: IEA, I-Sec research

Exhibit 17: Non-Opec supply for CY22-CY28

(mb/d)	CY22	CY23	CY24	CY25	CY26	CY27	CY28	CY22-CY28
OECD	27.3	28.5	29	29.4	29.6	29.7	29.7	2.4
OECD Americas	23.6	24.8	25.3	25.7	26.1	26.4	26.6	3
OECD Europe	3.2	3.2	3.2	3.3	3.1	2.9	2.7	-0.4
OECD Asia Oceania	0.5	0.5	0.5	0.4	0.4	0.4	0.4	-0.1
Non-OECD	15.3	15.7	16.1	16.4	16.7	17	17.1	1.9
FSU	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0
Europe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0
China	4.2	4.3	4.3	4.3	4.2	4.1	4	-0.2
Other Asia	2	2	1.9	1.9	1.8	1.7	1.7	-0.4
Non-OECD Americas	5.6	6	6.4	6.8	7	7.3	7.5	1.9
Middle East	1.9	1.9	1.9	1.9	2.1	2.2	2.2	0.3
Africa	1.1	1.1	1.1	1.2	1.3	1.3	1.4	0.3
Non-OPEC+ Oil	42.5	44.2	45.1	45.9	46.4	46.7	46.8	4.3
Processing Gains	2.3	2.4	2.4	2.5	2.5	2.5	2.5	0.2
Global Biofuels	2.9	3.1	3.3	3.4	3.4	3.5	3.6	0.6
Total-Non-OPEC+	47.8	49.7	50.9	51.7	52.3	52.7	52.9	5.1

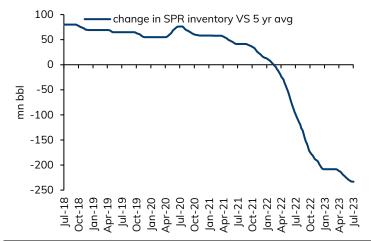
Source: IEA, I-Sec research

Exhibit 18: Strategic petroleum reserve (SPR) inventory well below 5-year average



Source: IEA, Bloomberg I-Sec research

Exhibit 19: Change in inventory vs 5-year average suggests a material scope for rebuild



Source: IEA, Bloomberg, I-Sec research

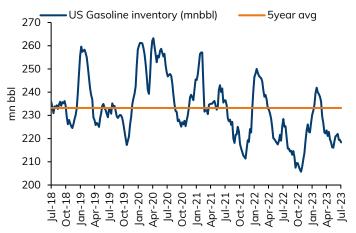


Exhibit 20: OECD SPR stocks still below historical levels (million barrels)

OECD oil stock oil on water	ks and	CY20	CY21	CY22	Q2CY21	Q3CY21	Q4CY21	Q1CY22	Q2CY22	Q3CY22	Q4CY22	Q1CY23
Closing stock l	levels,											
OECD onland	commercial	3,037	2,649	2,776	2,881	2,768	2,649	2,612	2,664	2,745	2,776	2,761
	Americas	1,613	1,470	1,487	1,553	1,523	1,470	1,407	1,436	1,469	1,487	1,489
	Europe	1,043	856	936	971	890	856	889	910	917	936	921
	Asia Pacific	380	324	353	357	355	324	316	318	359	353	351
OECD SPR		1,541	1,484	1,214	1,524	1,513	1,484	1,442	1,343	1,245	1,214	1,217
	Americas	640	596	374	623	620	596	568	495	418	374	373
	Europe	487	479	461	487	485	479	468	452	447	461	460
	Asia Pacific	414	409	378	413	408	409	406	395	380	378	383
OECD total		4,578	4,133	3,990	4,405	4,281	4,133	4,054	4,007	3,991	3,990	3,978
Oil-on-water		1,148	1,202	1,399	1,131	1,169	1,202	1,231	1,304	1,407	1,399	1,413

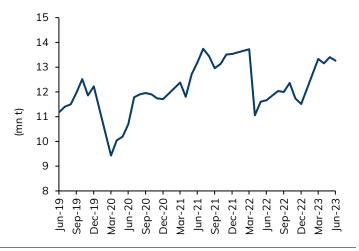
Source: OPEC MOMR - July 2023, I-Sec research

### Exhibit 21: Gasoline inventory below 5-year average...



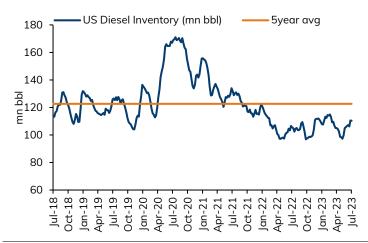
Source: IEA, Bloomberg , I-Sec research

Exhibit 23: China industry- gasoline production on an uptrend



Source: Bloomberg , I-Sec research

Exhibit 22: ...so is diesel inventory



Source: IEA, Bloomberg, I-Sec research

Exhibit 24: China oil imports have sharply jumped after economy reopening



Source: Bloomberg , I-Sec research



Exhibit 25: China fuel demand by-product to grow sharply in CY23E post decline in CY22

mb/d	CY19	CY20	CY21	CY22	CY23E	CY24E	CY23 growth %	CY24 growth %
LPG & Ethane	1.8	1.8	1.9	2.1	2.3	2.4	9.5%	4.3%
Naphtha	1.4	1.5	1.6	1.8	2.1	2.3	16.7%	9.5%
Motor Gasoline	3.4	3.2	3.5	3.4	3.7	3.7	8.8%	0.0%
Jet Fuel & Kerosene	0.9	0.8	0.8	0.6	0.9	1	50.0%	11.1%
Gas/Diesel Oil	3.2	3	3.2	3.3	3.6	3.6	9.1%	0.0%
Residual Fuel Oil	0.4	0.5	0.5	0.6	0.6	0.6	0.0%	0.0%
Other Products	3	3.5	3.5	2.9	2.9	2.9	0.0%	0.0%
Total Products	14.1	14.3	15.1	14.7	16.1	16.6	9.5%	3.1%

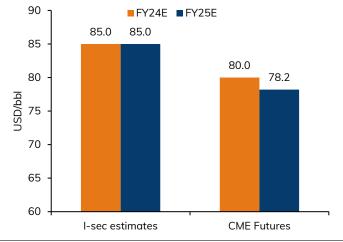
Source: IEA Oil market report, I-Sec research

Exhibit 26: India fuel demand by-product to grow gradually in CY23E after sharp rise in CY22

mb/d	CY19	CY20	CY21	CY22	CY23E	CY24E	CY23 growth %	CY24 growth %
LPG & Ethane	0.8	0.9	0.9	0.9	0.9	1	0.0%	11.1%
Naphtha	0.3	0.3	0.3	0.3	0.3	0.3	0.0%	0.0%
Motor Gasoline	0.7	0.7	0.8	0.9	0.9	0.9	0.0%	0.0%
Jet Fuel & Kerosene	0.2	0.1	0.1	0.2	0.2	0.2	0.0%	0.0%
Gas/Diesel Oil	1.6	1.5	1.5	1.7	1.8	1.9	5.9%	5.6%
Residual Fuel Oil	0.1	0.1	0.2	0.2	0.2	0.2	0.0%	0.0%
Other Products	1.1	1	1	1.1	1.1	1.2	0.0%	9.1%
Total Products	5	4.6	4.9	5.3	5.5	5.6	3.8%	1.8%

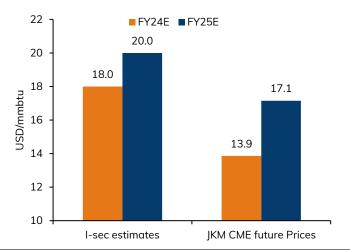
Source: IEA Oil market report, I-Sec research

Exhibit 27: I-Sec crude price estimates are well above current CME future prices...



Source: Bloomberg, CME , I-Sec research

Exhibit 28: ...so are spot LNG prices



Source: Bloomberg, CME , I-Sec research



## Some key conclusions: Expect tightness in markets to return

### Inventories for oil + product well below sustainable levels

This can spur a sharp rebuilding exercise over the latter half of CY23. We see US, in particular, returning to the market for its SPR rebuild as it seems to be one country with the biggest shortfall in its inventory levels.

Additionally, even product inventories of diesel and gasoline continue to trend below their 5-year averages in the USA. Depending on the extent of the demand momentum for this year's driving season starting from July, we can see some uptick for product demand.

### Supply tightness is material

Saudi Arabia has shown its willingness to step in and rebalance the market on its own, if need be, and the supply deficit remains material as of now, given the expected demand for CY23/24E. Further escalation of the Russia-Ukraine conflict and disruption thereof to Russian crude supply can further pressurise markets.

### LNG market rebalancing is already in place

Post the upheaval in the global LNG markets in CY22, trade dynamics have adjusted to the changes over the last 23 months, with focus of global trade shifting from South Asia to Europe (Europe increases its LNG imports by >50mt in CY22 to 126.6mt), even as China and Japan jostle for the lead in being the biggest individual importers (both countries imported ~74 and ~64mt, respectively, in CY22).

The trend for LNG imports can change materially over CY23E, if China gets back to its normalised run rate of ~78mt and India also gets back to growth in its imports (was down 4.2mt in CY22 to 19.4mt) this dynamics will change again, but we believe this will depend on pricing trends over the next 12 months.

#### Pricing to strengthen, across oil & gas space

Given the expected tightness in global oil & gas supplies, we continue to believe current futures prices underplay the market dynamics expected over the next 12 months and hence, maintain our estimates of USD 85/bbl for crude, term LNG prices at ~USD 12/MMBtu and spot LNG prices to average USD 18-20/MMBTu over FY24, well above futures price averages of USD 79.1/bbl for crude and USD 15.5/MMBtu for spot LNG.



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