Oil & Gas - Overall

Russian Roulette - Odds in favour of Europe

- Europe seems to have an upper hand vis-à-vis Russia by surviving this winter with enough heating capacity.
- OECD countries have surplus fuel oil which can be ploughed to fire boilers in Europe, but they need excess diesel & naphtha during winter for power needs.
- We expect diesel spread to rise and naphtha discount to vanish. Indian imports of fuel oil will become costly. Go long on RIL and short gas importers.

Russian Roulette game - Europe seems to have an upper hand

Europe and Putin seem to be playing the Russian roulette. But it's not an equal probability game for Europe and Russia, one bullet is the winter and if Europe survives, then probably it will be game over for Putin. We reckon the probability is lopsided in favour of Europe now. At the current rate, Europe will have ~100bcm gas in its storage capacity by Sep 2022F. Europe needs ~400bcm gas to survive the winter in the current scenario, but if Russia stops gas flow from Oct 2022F, it will have a 60bcm shortage. In a scenario of Russia continuing gas supply at reduced rates, the shortage will be 30bcm. In any case, Europe can plough on 0.6mbpd surplus fuel oil from OECD and needs to buy sufficient diesel and naphtha. Europe's diesel shortage in likely case will be 0.3mbpd and in a worst-case scenario, 0.6mbpd. In either case, diesel spread will rise from hereon. Naphtha will also be in shortage, but not huge, and Europe can possibly use naphtha and fuel oil in combination to fire gas turbines. We expect naphtha and fuel oil discount to vanish, which is good news for refiners. Go long on refiners who have a concentrated diesel portfolio like RIL.

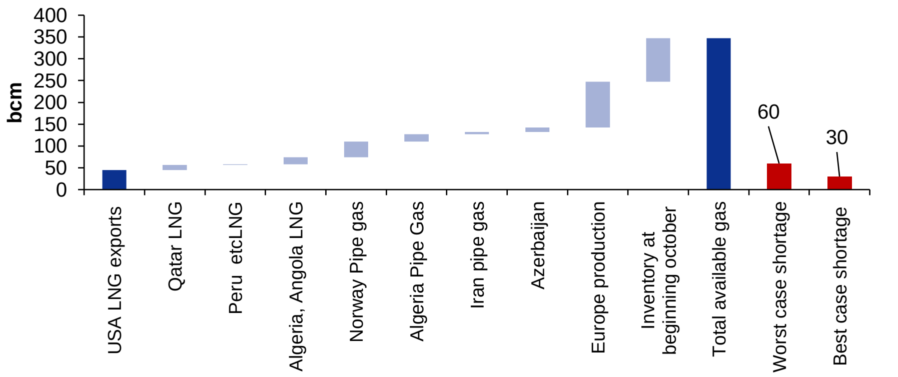
Recession may not lead to demand destruction needed in Europe

To balance the market for diesel and naphtha in Europe, there needs to be demand destruction of at least 4-5%. Please note that such big demand destruction has happened only once in history during the 2008 Great Financial Crisis or GFC (we are not counting the Covid-19 pandemic as that time world had come to a standstill). Central banks would use rates as a tool to manage demand so that energy inflation doesn't become rampant, as capacity expansion plans are still non-existent. Hence, in this scenario, while US$60/bbl diesel spread may not happen again but US$30+ spread for diesel, and zero discount for naphtha and fuel oil is a high-probability event.

Can Europe kneel and kiss Putin's hands? Very unlikely

Psychological warfare is going on in Europe (*we all have seen the short propaganda video by Russia – Winter is coming* https://www.youtube.com/watch?v=BQX3tMHwOvo). Europe resembles a pre-Second World War destination. Europe seems to be prepared to take the blow of a harsh winter in terms of higher energy prices (but not scorching high price inflation). It's the matter of taking the winter blow and surviving because after that Putin may not last till next winter. We are in a high energy price age, and ultimately governments will force companies to invest and stop giving dividend, and also ESG investment will go into the dustbin of history. Till that time enjoy the ride. Go long on aluminium, refineries, and gas producers. Don't touch Indian CGD (city gas distribution) players.

Figure 1: In a best-case scenario, Europe will be short of natural gas by 30bcm during the winter season



SOURCE: INCRED RESEARCH, COMPANY REPORTS

India

Neutral *(no change)*

Highlighted Companies

Reliance Industries

ADD, TP Rs3369, Rs2534 close

Uptick in global refining cycle to hasten deleveraging and drive a 35% EPS CAGR over FY22-24F. We build in US$20/bbl GRM. Our analysis indicates that RIL's new energy initiatives are value-accretive and can add ~Rs170bn to EV. R-JIO and retail business remain strong.

Gujarat Gas

REDUCE, TP Rs410, Rs438 close

Consensus earnings are in for disappointment as, in our view, either gross profit will decline, or volume growth will disappoint. Initiate coverage on the stock with a Reduce rating.

Mahanagar Gas

REDUCE, TP Rs642, Rs785 close

Consensus earnings estimates are too high, in our view, and need a massive cut (>30%). Initiate coverage on the stock with a Reduce rating.

Summary Valuation Metrics

P/E (x)	Mar22-F	Mar23-F	Mar24-F
Reliance Industries	25.15	15.62	14.18
Gujarat Gas	27.69	27.83	24.65
Mahanagar Gas	15.43	14.66	14.68

P/BV (x)	Mar22-F	Mar23-F	Mar24-F
Reliance Industries	2.08	1.87	1.68
Gujarat Gas	5.52	4.7	4.02
Mahanagar Gas	2.08	1.82	1.62

Dividend Yield	Mar22-F	Mar23-F	Mar24-F
Reliance Industries	0.3%	0.32%	0.34%
Gujarat Gas	0.46%	0.46%	0.46%
Mahanagar Gas	4.2%	1.27%	1.27%

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Russian Roulette - Odds in favour of Europe

Europe and Putin seem to be playing the Russian roulette. Only two shots appear to be left and one slot has the bullet. But it's not an equal probability game for Europe and Russia - one bullet is the winter and if Europe survives, then probably it will be game over for Putin. We reckon the probability is lopsided in favour of Europe now. Europe is bracing for inflation and extremely high gas prices. Correction in oil prices and receding recession fears are God-sent opportunities (or self-made opportunities) for Europe. Central banks may become a political tool now and money is an integral part of the warfare in Europe.

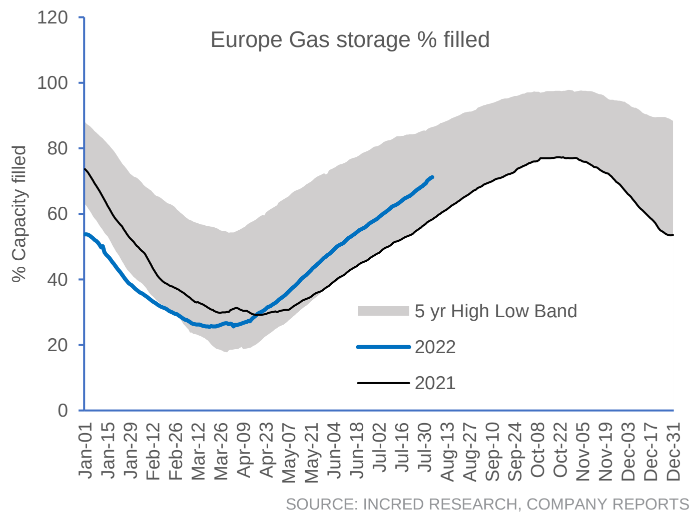
Europe has worked well on energy problems

Our analysis of ostensible Europe's moves on the energy front indicates that it has an upper hand in the ensuing political scenario. Psychological warfare is going on in Europe (we all have seen the short propaganda video by Russia – **Winter is coming** https://www.youtube.com/watch?v=BQX3tMHwOvo). Europe resembles a pre-Second World War scenario. History repeats itself and repeats with a remarkable frequency, but this time Europe seems to be prepared to take the blow.

European gas capacity is 71% filled

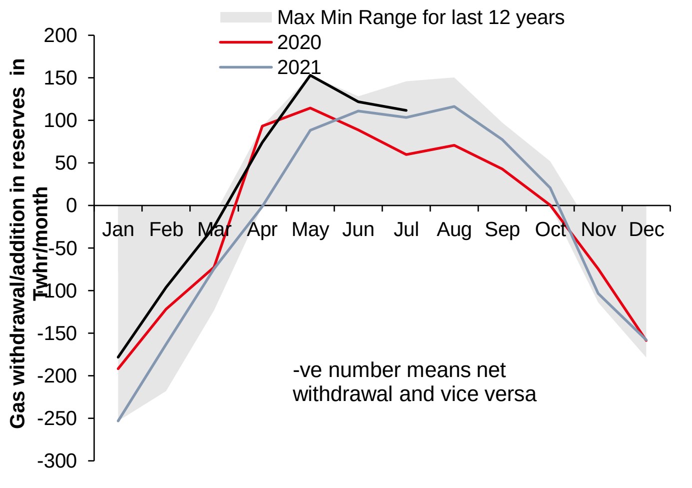
Analysis of % gas capacity filled in Europe indicates that Europe has cut gas demand and is prepared to use alternate fuels in higher quantity during the winter season.

Figure 2: European gas storage capacity is 71% filled



SOURCE: INCRED RESEARCH, COMPANY REPORTS

Figure 3: This is despite the overall addition being close to 2021 levels, which means Europe is cutting gas demand

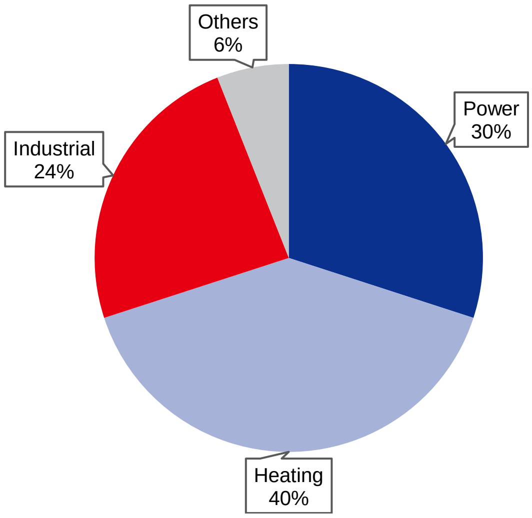


SOURCE: INCRED RESEARCH, COMPANY REPORTS

European gas capacity will be~100% filled by Sep 2022F

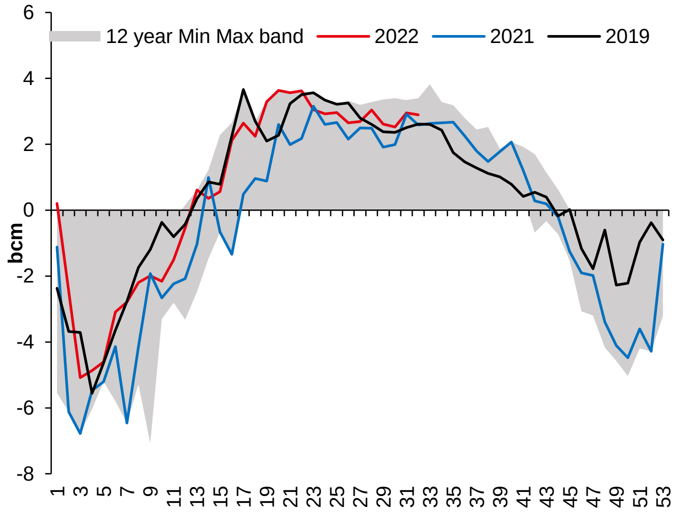
Most of the gas for heating purpose is used during Oct-Apr period in Europe. During this period, Europe can use around 200bn cubic metres of natural gas for heating purpose. As of 4 Aug 2022, Europe has gas storage of 80bcm.

Figure 4: 40% of the total gas usage (~200bcm) is used for heating in Europe



SOURCE: INCRED RESEARCH, COMPANY REPORTS

Figure 5: The addition to pool, in terms of bcm, is still around 2.9bcm per week, highest in last three years



SOURCE: INCRED RESEARCH, COMPANY REPORTS

There is still eight weeks to go before withdrawal starts and so assuming Europe keeps buying at the current rate, then by 30 Sep 2020F its overall pool of gas will be around 103bcm and capacity will be nearly 100% filled, something that has not happened in last five years.

Europe still needs to buy 100bcm gas during winter or ~ 4.2bcm gas per week to meet its heating requirements ➤

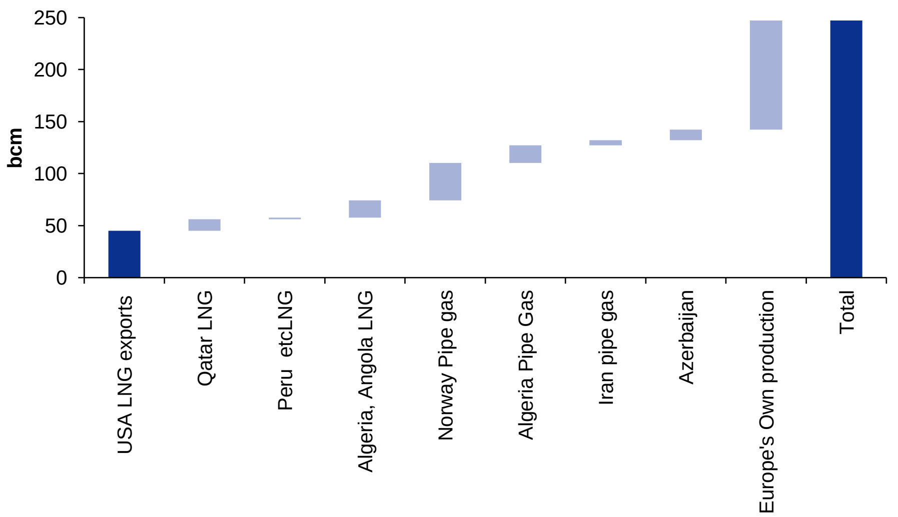
To tide over winter and have sufficient cover, Europe needs around 100bcm gas over Oct 2022F to Mar 2023F. This means its gas requirement is around 4.2 bcm per week.

Even in a worst-case scenario, that is Russia stops gas flow, this can be easily achieved by Europe ➤

Pushed to the wall, Putin will stop gas flow to Russia and hence, in our worst-case analysis, we assume that Russian gas flow to Europe will become zero from Oct 2022F. To analyse, we have assumed the following:

1. USA will export all its LNG to Europe.
2. Other exports will continue like in 2021 for Europe.
3. Europe's own gas production will remain at 105bcm for six months, as it was in 2021.

Figure 6: Even if Russia stops gas exports in winter, then also at least the EU can get 242bcm gas which is enough for its heating requirement



SOURCE: INCRED RESEARCH, COMPANY REPORTS

However, it will result in big demand spike for diesel, naphtha and fuel oil

A. In this case, gas for Industrial and other usage will be limited to 120bcm whereas the requirement will be around 160bcm. Hence, Europe will face a shortage of around 50-60bcm.
B. This 50-60bcm will have to be cut from power production/industrial usage. In place of gas, one can use naphtha and burn fuel oil in boilers.
C. Assuming all shortage will be fulfilled by naphtha and fuel oil in equal ratio, Europe will need 0.88mbbl/naphtha per day and 0.95mbpd of fuel oil.
D. If we assume equal usage of fuel oil, naphtha, and diesel for generating power, then Europe will need 0.6mbblpd of naphtha, 0.64mbpd of fuel oil and 0.60mbpd of diesel.
E. In other words, global naphtha/ fuel oil/diesel demand can rise by 10%/10% and 3%, respectively.

George Soros' proposition that Russia will be forced to supply gas as it doesn't have storage capacity is incorrect

"Mr. Soros proposition that Russia must supply gas otherwise it will have close the gas wells", is incorrect. Almost all wells have stacks in it and so they can be burnt. Putin will simply flare the gas, and yes, he will lose money but expecting rationality and economic benefit analysis during wartime is the most irrational thing to do.

If things stand as it is, then also Europe must prepare to use more fuel oil, diesel and naphtha

As of now, Russian supply to Europe is down by 50%. Even if we assume that Russian supply is around 30bcm during European winter, then also Europe must prepare for more fuel oil, naphtha, and diesel consumption during the winter. In this scenario, global demand growth for fuel oil, naphtha and diesel will be around 5%/5% and 1.5%, respectively. This is enough to cause a price rise of these commodities across the world.

Is there any evidence that Europe and rest of the world is preparing for the same? Yes, there is plenty of evidence

1. https://impakter.com/germany-france-and-italy-respond-to-energy-crises-more-coal-more-oil/
2. https://www.bloomberg.com/opinion/articles/2022-08-04/european-energy-crisis-germany-s-switch-to-diesel-comes-at-a-cost
3. https://news.abplive.com/news/world/heatwave-and-energy-crisis-what-eu-nations-are-doing-to-reduce-power-consumption-and-dependency-on-russian-gas-1546051
4. https://www.dailymail.co.uk/news/article-11073531/Madrid-not-switch-vows-mayor-Spain-orders-cities-save-energy-amid-EUs-gas-crisis.html

One can find more reports of the response of the governments on the same. The key is to ascertain whether there is any rise in sales of oil equipment suppliers.

Figure 7: This is a snippet from Cummins' earnings call where it is projecting likely power generation equipment sales growth of 120%

Demand for new oil and gas engines, is expected to increase by 120%, an update from our previous guidance of up 95%. Strong demand in the US and other oil and gas markets have fueled this improved outlook. Revenue and global power generation markets are expected to increase 5% driven by increases in non-residential construction consistent with our prior guidance. We are now projecting aftermarket sales to increase 15% to 20% from 2021, an improvement from our previous estimate of up 15%, this is driven by parts demand within our North America On-highway business as well as global power systems markets.

SOURCE: CUMMINS EARNINSG CALL

This means diesel, fuel oil and naptha demand will rise

Europe doesn't need to kneel and kiss Putin's hands and that's apparent for now. However, sarcastic the video made by Putin, the Russian president knows the odds are against him now and that's why he is resorting to psychological warfare. We also believe that when pushed to the wall, Russia will resort to a complete shutdown of gas supply to Europe. In that scenario, starting Oct 2022F, naphtha/diesel/fuel oil global demand will rise by 8.46%/2.2% and 9.5%, respectively. Even if Russia keeps supplying gas at the current rate, then also global demand for naphtha/fuel oil/diesel will rise by 4.3%/4.8%/1.1%, respectively.

Global naptha demand can rise between 4.3%-8.46% during Oct 2022F-Apr 2023F ➤

Depending on Russia's piped gas flow to Europe, we can expect an increase in Europe's naphtha purchases to increase by 0.3mbpd to 0.6mbpd. **Our analysis assumes only one-third of the gas shortage will be met by naphtha supply.**

Figure 8: In a worst-case scenario for Europe, global demand to rise by 8.5%

	Value	Units
Naphtha GCV	8,349.28	Kcal/L
Natural Gas GCV	10,000.00	Kcal/scm
1 SCM gas Equal	0.83	Litres/ naphtha
1 BCM gas	5.25	m bbl naphtha
20 BCM gas	105.02	m bbl naphtha
For six months, per day demand increase in Europe	0.58	m bbl per day
Current global demand of naphtha	6.90	m bbl per day
% increase in global demand	8.46%	

SOURCE: COMPANY REPORTS, INCRED RESEARCH

Figure 9: In a best-case scenario for Europe (assuming Russian gas flows at the current rate) increase in global demand will be ~4.3%

		Units
Naphtha GCV	8,349.28	Kcal/L
Natural gas GCV	10,000.00	Kcal/scm
1 scm gas equal	0.83	L/ naphtha
1 bcm gas	5.25	m bbl naphtha
10 bcm gas	52.51	m bbl naphtha
For six months, per day demand increase	0.29	m bbl per day
Current global demand for naphtha	6.90	m bbl per day
% increase in global demand	4.23%	

SOURCE: COMPANY REPORTS, INCRED RESEARCH

Global fuel oil demand can rise between 4.8%-9.5% during Oct 2022F-Apr 2023F ➤

Our analysis assumes only one-third of the gas shortage will be fulfilled by fuel oil

Figure 10: In a worst-case scenario for Europe, global fuel demand to rise by 9.5%

	Values	Units
Fuel oil GCV	9,138.756	Kcal/L
Natural gas GCV	10,000.000	Kcal/scm
1 scm gas equal	0.914	L/fuel oil
1 bcm gas	5.748	m bbl fuel oil
20 bcm gas	114.953	m bbl fuel oil
For six months, per day demand increase	0.639	m bbl per day
Current global demand for fuel oil	6.700	m bbl per day
% increase in global demand	9.5%	

SOURCE: COMPANY REPORTS, INCRED RESEARCH

Figure 11: In a best-case scenario for Europe (assuming Russian gas flows at the current rate), increase in global demand will be ~4.8%

	Values	Units
Fuel oil GCV	9,138.756	Kcal/L
Natural gas GCV	10,000.000	Kcal/scm
1 scm gas Equal	0.914	L/fuel oil
1bcm gas	5.748	m bbl fuel oil
10 bcm gas	57.476	m bbl fuel oil
For six months, per day demand increase	0.319	m bbl per day
Current global demand for fuel oil	6.700	m bbl per day
% increase in global demand	4.8%	

SOURCE: COMPANY REPORTS, INCRED RESEARCH

Global diesel demand can rise (incrementally) between 1.1%-2.2% during Oct 2022F-Ap2 2023F ➤

Our analysis assumes only one-third of the gas shortage will be fulfilled by diesel

Figure 12: In a worst-case scenario for Europe, global diesel demand to rise by 2.2%

	Values	Units
Diesel GCV	8,612.44	Kcal/L
Natural gas GCV	10,000.00	Kcal/scm
1 scm gas equal	0.86	L/diesel
1 bcm gas	5.42	m bbl diesel
20 bcm gas	108.33	m bbl diesel
For six months, per day demand increase	0.60	m bbl per day
Current global demand for diesel	27.90	m bbl per day
% increase in global demand	2.2%	

SOURCE: INCRED RESEARCH, COMPANY REPORTS

Figure 13: In a best-case scenario for Europe (assuming Russian gas flows at the current rate), increase in global demand will be ~1.1%

		Units
Diesel GCV	8,612.44	Kcal/L
Natural gas GCV	10,000.00	Kcal/scm
1 scm gas equals	0.86	L/diesel
1 bcm gas	5.42	m bbl diesel
10 bcm gas	54.17	m bbl diesel
For six months, per day demand increase	0.30	m bbl per day
Current global demand for diesel	27.90	m bbl per day
% increase in global demand	1.1%	

SOURCE: INCRED RESEARCH, COMPANY REPORTS

Diesel spreads likely to rise in coming weeks and months

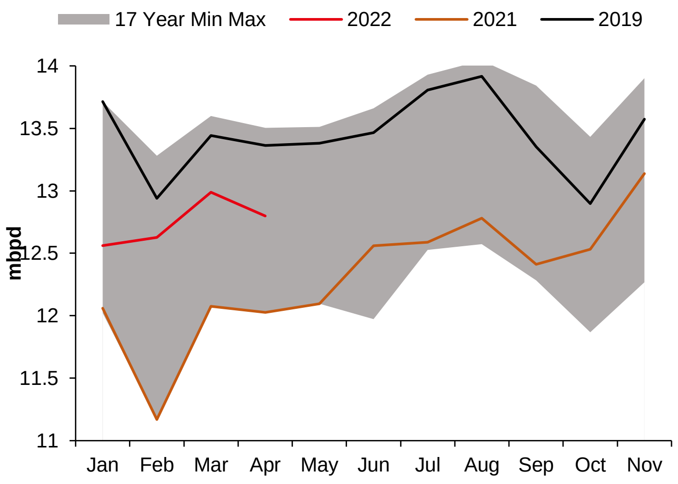
Diesel spreads have fallen as the world is fearing a recession in the coming months and weeks. Our analysis indicates that to balance the market, OCED demand needs to decline by 3% in this case (assuming Russian gas flows at the current rate) and 5% in a worst case (Putin stops Russian gas flows during the winter season). The cost of diesel production is rising, which we have covered in detail in our recent report: IN: Strategy Note - Money, Military, and Microorganism

In the past three-to-four years, most closed refineries were heavy crude users and they used to produce 50-55% diesel in product slate ➤

In the refining process, diesel is a part of middle distillate. One gets a higher % of middle distillate in refining of heavy crude oil, which is more pollutant. Hence, in an analysis of diesel production, one needs to account for the fact that capacities over the last three-to-four years used mostly heavy crude oil. These refineries could produce ~50-55% diesel as against new refineries which are mostly gasoline producers.

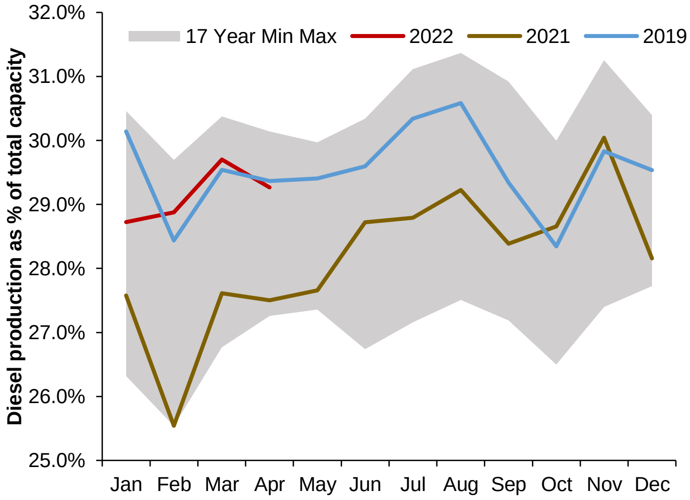
International Energy Agency data indicates that Organisation for Economic Co-operation and Development or OECD countries' refineries are running at full load to supply diesel ➤

Figure 14: 17 years min-max range of diesel production (in mbpd)



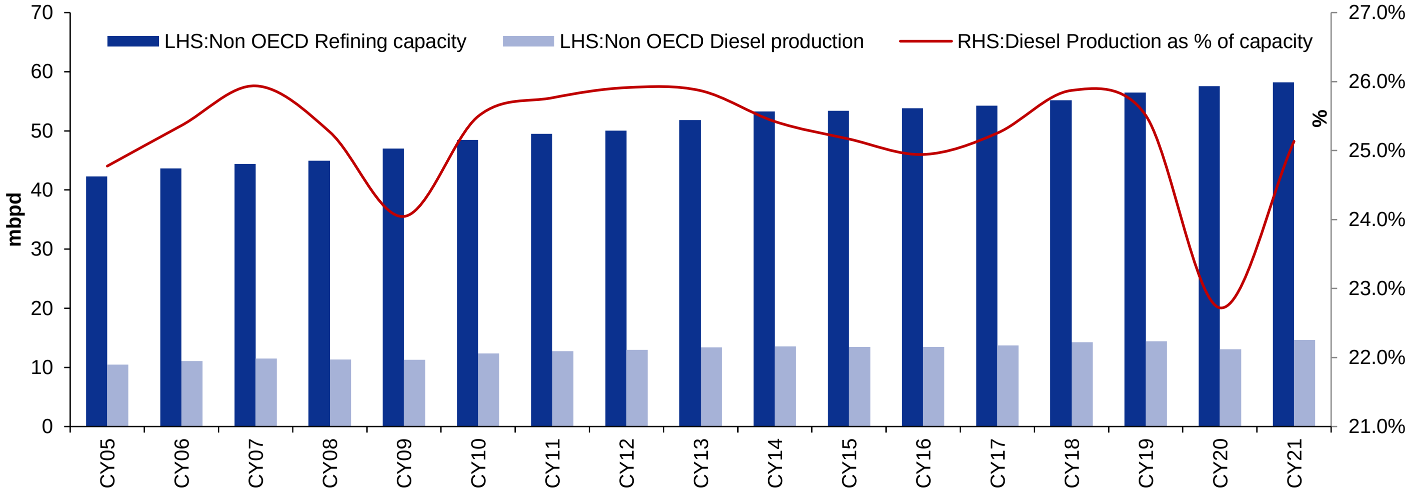
SOURCE: INCRED RESEARCH, COMPANY REPORTS

Figure 15: OECD countries are unlikely to produce diesel which is more than 29% of their refining capacity



SOURCE: INCRED RESEARCH, COMPANY REPORTS

Figure 16: Diesel production, as a % of refining capacity, has never been more than 26% in non-OECD countries; please note that new capacity in non-OECD nations is even more geared for gasoline production



SOURCE: INCRED RESEARCH, COMPANY REPORTS

During European winter, world can produce at the maximum~ 27.8mbpd of diesel

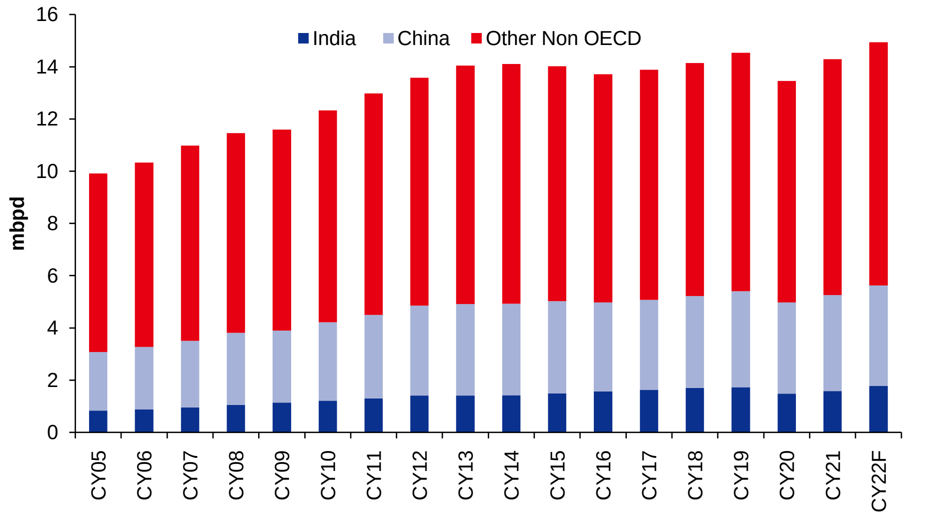
Figure 17: Maximum possible diesel production in the world during European winter will be ~27.8mbpd

	Capacity in mbpd	Max. possible diesel production	
OECD refining capacity	43.73	29.50%	12.90
Non-OECD refining capacity	58.50	25.50%	14.92
Total	**102.23**	**27.2%**	**27.82**

SOURCE: INCRED RESEARCH, COMPANY REPORTS

India, China and other non-OECD countries are still showing growth in diesel consumption, which means non-OCED demand can be ~15mbpd

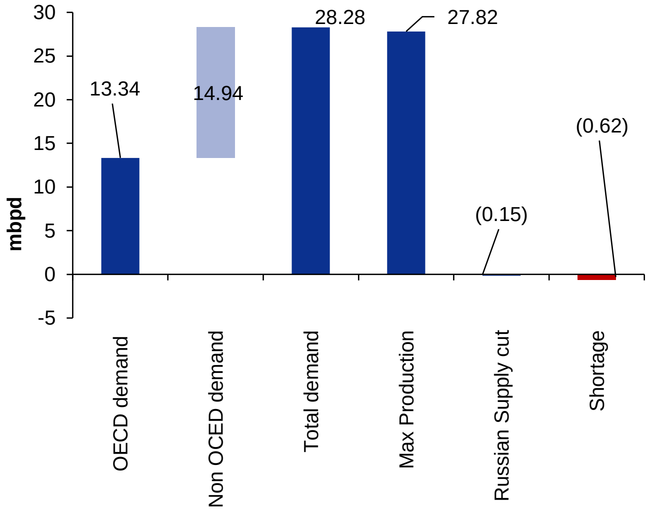
Figure 18: Overall, non-OECD demand should be around 15mbpd in CY22F



SOURCE: INCRED RESEARCH, COMPANY REPORTS

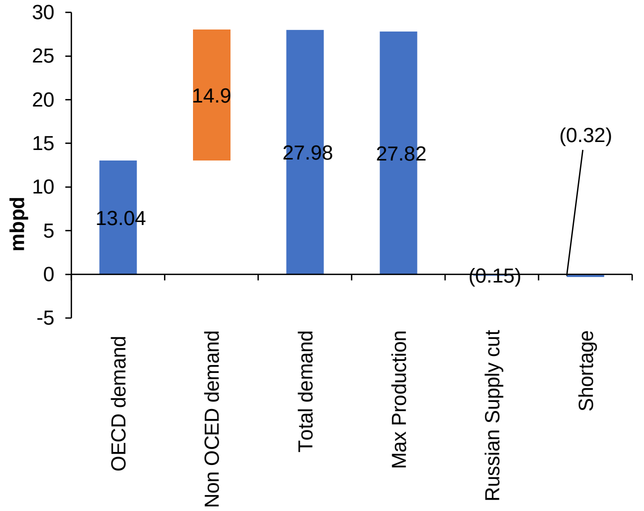
Hence, unless there is big demand destruction by 4-5% because of global recession, we can witness a big diesel shortage ›

Figure 19: In a worst-case scenario for Russian gas flow, global diesel shortage can be ~0.6mbpd



SOURCE: COMPANY REPORTS, INCRED RESEARCH

Figure 20: In the best-case scenario for Russian gas flow, global diesel shortage can be ~0.3mbpd

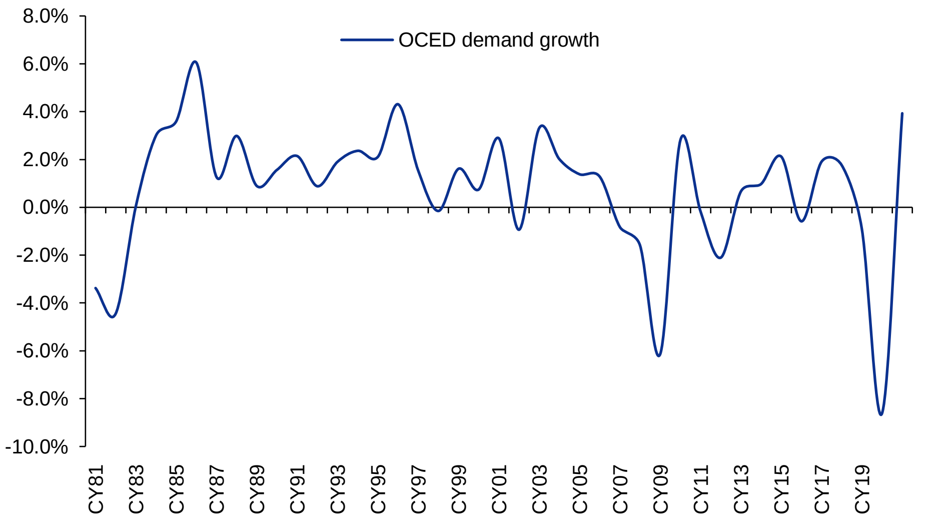


SOURCE: COMPANY REPORTS, INCRED RESEARCH

To balance the market ,OECD recession is needed to kill diesel demand by 5% but this hasn't happened, apart from GFC and Covid-19, in last 45 years ›

To be safe in a worst-case scenario, Europe needs an OCED recession which kills diesel demand by 4-5%.

Figure 21: Apart from Covid-19 and GFC, OECD demand has not declined by more than 5% - during both these times the world just came to a standstill



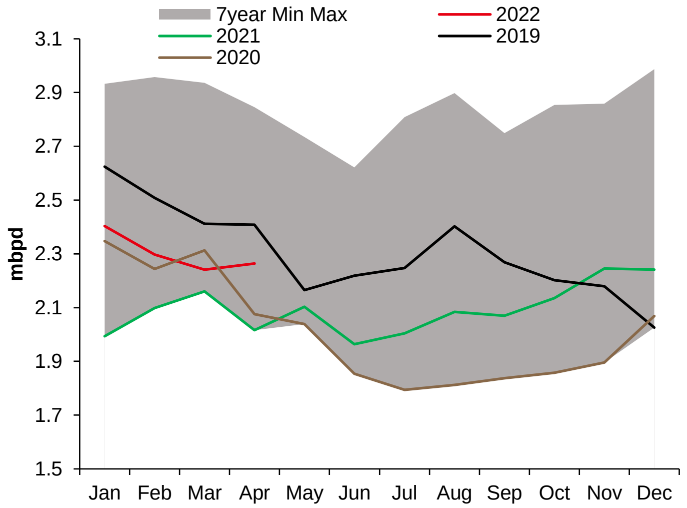
SOURCE: INCRED RESEARCH, COMPANY REPORTS

Fuel and naphtha discount to vanish in coming months

We also believe that given the dynamics of fuel oil and naphtha, we are likely to see its discount with crude oil to vanish in coming weeks and months. Naphtha has always traded near crude oil price and fuel oil at around US$20/bbl discount to Brent crude oil.

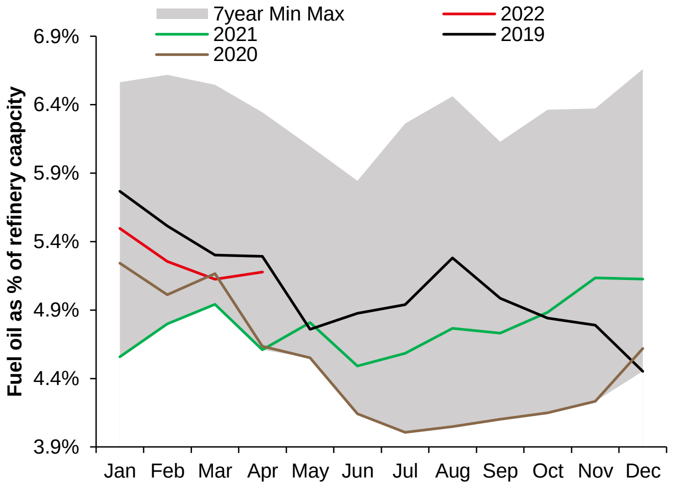
At best, OECD can produce fuel oil at the rate of 5.5% of its installed refining capacity

Figure 22: After retiring heavy crude oil refineries, we believe OECD's ability to produce fuel oil is limited



SOURCE: COMPANY REPORTS, INCRED RESEARCH

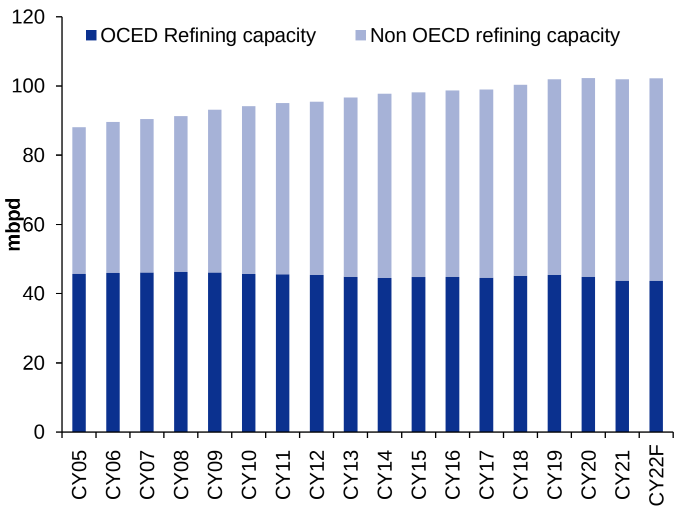
Figure 23: In our view, OECD can, at most, produce fuel oil at the rate of 5.5% of its installed refining capacity



SOURCE: COMPANY REPORTS, INCRED RESEARCH

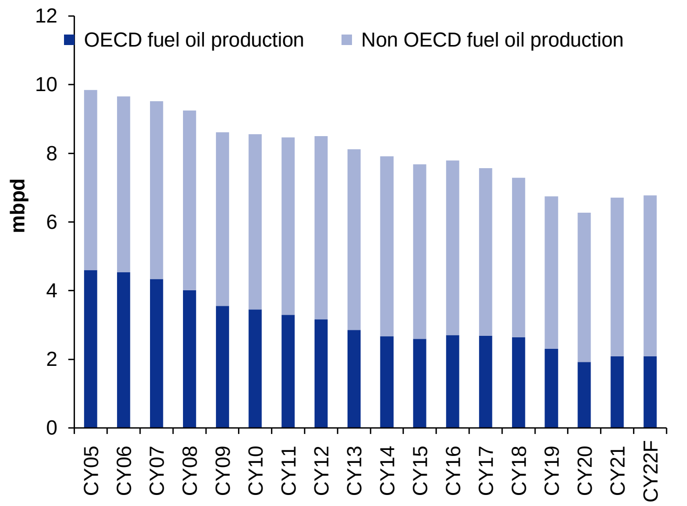
Given current scenario, OECD countries will be forced to use all fuel oils for internal consumption and hence, there will be shortage in the world

Figure 24: OECD countries' refining capacity has been stagnant as they closed heavy crude oil processing capacities



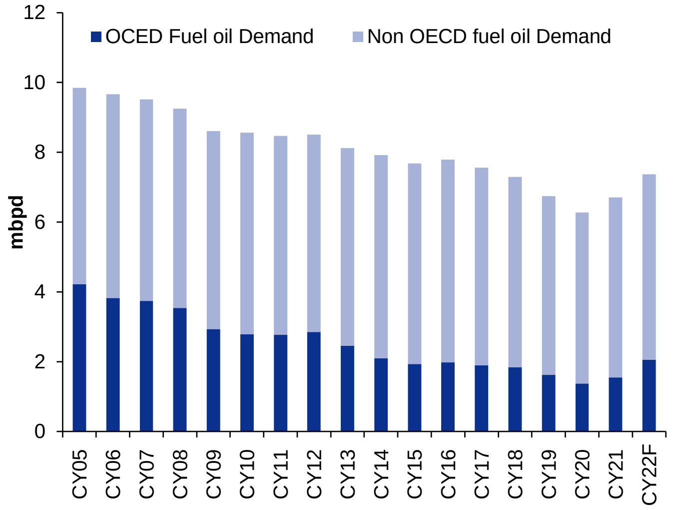
SOURCE: INCRED RESEARCH, COMPANY REPORTS

Figure 25: Hence, OECD fuel oil production has come down by more than 50% over 2005, but it is still more than domestic usage



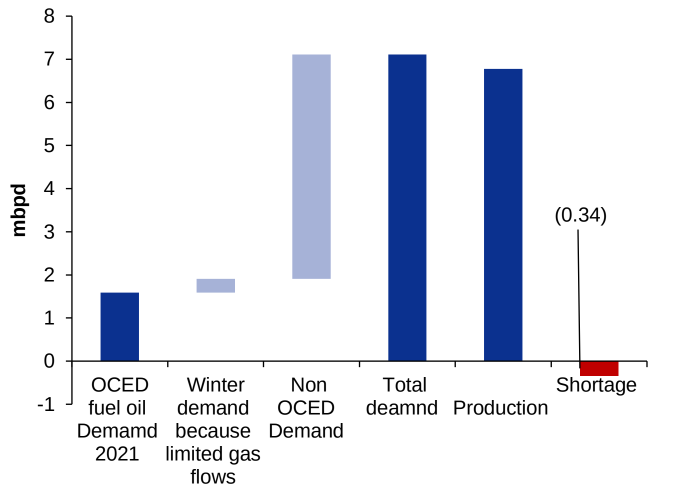
SOURCE: INCRED RESEARCH, COMPANY REPORTS

Figure 26: Hence, they export it to non-OECD countries



SOURCE: INCRED RESEARCH, COMPANY REPORTS

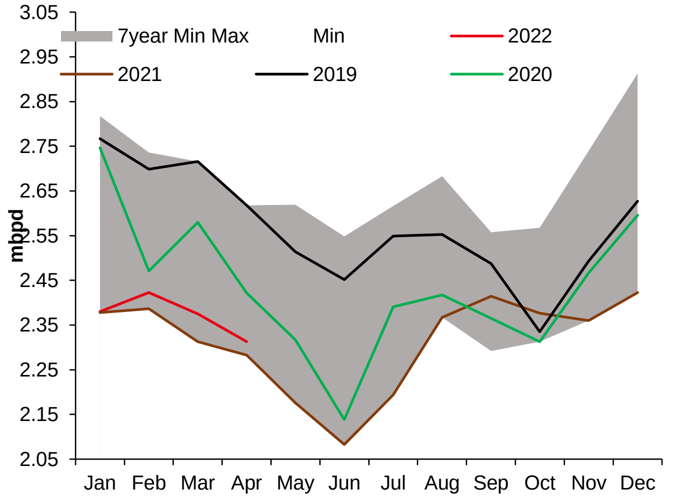
Figure 27: Gas shortage will force them to use it themselves, leading to a global shortage



SOURCE: INCRED RESEARCH, COMPANY REPORTS

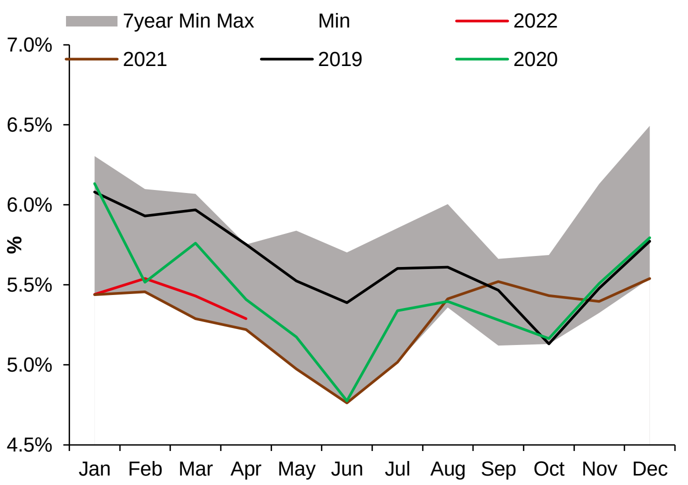
At best, OECD countries can produce naptha at 5.5% of their refining capacity

Figure 28: Naphtha production in OECD countries is coming down



SOURCE: INCRED RESEARCH, COMPANY REPORTS

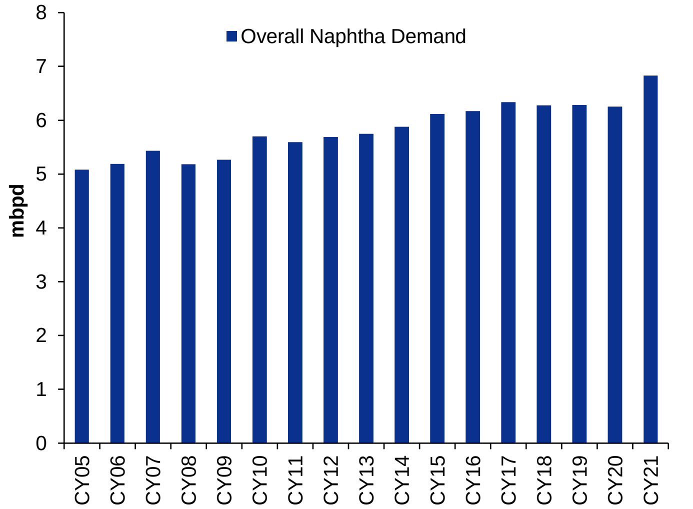
Figure 29: As a % of refining capacity, at max, OECD countries can produce 5.5% naphtha on a sustained basis



SOURCE: INCRED RESEARCH, COMPANY REPORTS

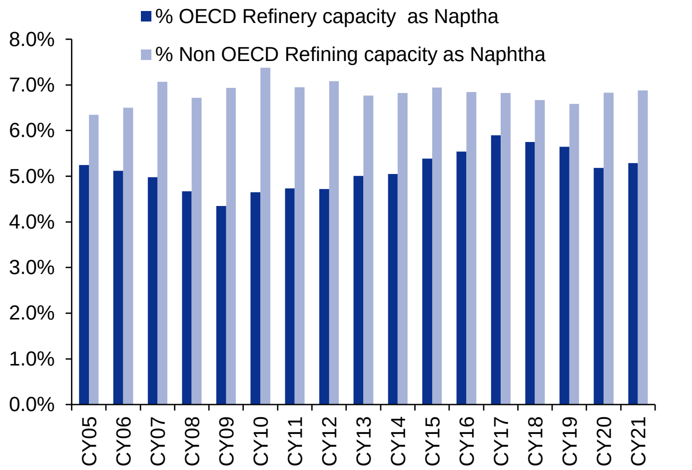
Over the years, global naphtha demand has increased but non-OECD production has remained ~6.8% of refining capacity

Figure 30: Global naphtha demand remained resilient in 2020 as well



SOURCE: INCRED RESEARCH, COMPANY REPORTS

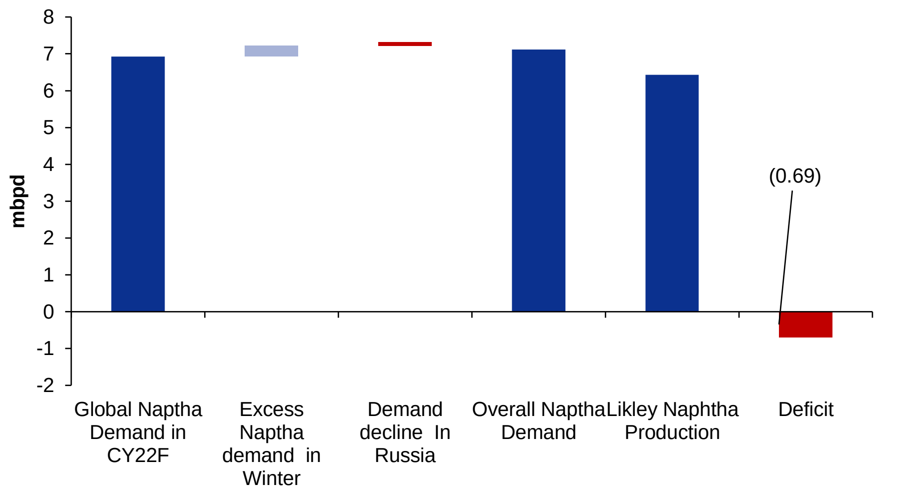
Figure 31: 5.5% naphtha, as a % of refining capacity, is the peak for OECD countries and 6.8% for non-OECD countries



SOURCES: INCRED RESEARCH, COMPANY REPORTS

Hence, in coming winter, even in a best-case scenario for Russian gas supply, there will be a shortage of naphtha

Figure 32: There can be global naphtha shortage to the extent of 0.69mbpd during winter, resulting in a steep inventory decline



SOURCE: INCRED RESEARCH, COMPANY REPORTS

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