India

Overweight *(no change)*

Highlighted Companies

Indian Oil Corp
ADD, TP Rs160, Rs126 close

We reiterate our Add rating and SOTP-based TP of Rs160. Despite a poor performance, the stock is a key beneficiary of higher GRM.

Hindustan Petroleum
HOLD, TP Rs305, Rs269 close

While it has underperformed peers on refining volume and margins in 9MFY22, the rise in GRM earnings can surprise positively. We have a Hold rating on the stock with a TP of Rs305.

Bharat Petroleum
REDUCE, TP Rs375, Rs357 close

With rising uncertainty over its strategic sales, BPCL is likely to materially step up its Capex guidance. We reiterate Reduce rating. The key negative trigger is the lack of success in executing strategic sales of the government's holding in the company.

Summary Valuation Metrics

P/E (x)	Mar22-F	Mar23-F	Mar24-F
Indian Oil Corp	4.65	6.08	5.66
Hindustan Petroleum	5.42	5.61	5.48
Bharat Petroleum	7.71	9.32	9.37
P/BV (x)	**Mar22-F**	**Mar23-F**	**Mar24-F**
Indian Oil Corp	0.9	0.84	0.79
Hindustan Petroleum	0.93	0.84	0.76
Bharat Petroleum	1.73	1.59	1.47
Dividend Yield	**Mar22-F**	**Mar23-F**	**Mar24-F**
Indian Oil Corp	9.5%	7.92%	8.71%
Hindustan Petroleum	5.24%	5.21%	5.21%
Bharat Petroleum	6.13%	5.52%	5.52%

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Oil & Gas Refinery

The upcycle is here

- With Russia becoming a pariah in the global market, the refining demand-supply situation is extremely tight, and it has no room for disruption.
- Rising power price (courtesy gas crisis) has made EV (electric vehicle) running costs much higher than a gasoline-based vehicle (even at current crude price).
- Even if the Russian situation normalizes, then also refiners should operate at 95%+ utilization to fulfill demand. GRM to remain high. Retain Overweight.

High-cost power will delay EV story; oil demand to remain strong

In the past few years, 1m bbl (barrel) refining capacity closed in the USA, and capacity closure in Europe was ~2m bbl per day. Oil demand has been bouncing back to pre-Covid pandemic levels globally. At the same time, the western world is facing three problems: 1) They have made Russia a pariah state and hence, despite having energy dependency on it they are searching for alternatives. 2) Overzealous ESG investing paradigm has resulted in meager investments in refining as well as mining assets. 3) They assumed that EVs will change the world in a few years but didn't calculate that EVs need power and high-power prices will destroy the EV story. As of now, an EV's capital cost is 45% higher than that of a gasoline vehicle and its running cost is 2x of a gasoline vehicle in Europe. In the USA, EV's running cost is like that of a gasoline vehicle. Hence, unless coal-fired plants come in a big way in Europe and Russian gas dependency is reduced, power prices won't come down. This also means there is little or no risk to diesel and gasoline demand in OECD countries.

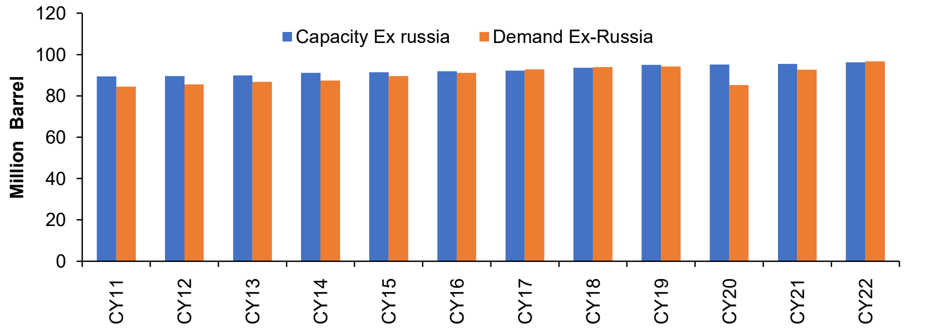
Global refining demand is too finely balanced

Global refining assets need to run at a 95% capacity utilization level for the next two years as product demand comes back to pre-pandemic level. Please note that the current demand-supply scenario doesn't leave any room for big voluntary shutdowns or weather-driven forced shutdowns. It is also interesting to note that 47% of US refining assets (~9m bbl per day) are in the Gulf of Mexico region where storms have caused frequently forced shutdowns of refineries. Declaring Russia, a pariah state is also leading to a big problem as Russia used to export ~2m bbl/ day of refined products. As a result, naphtha prices are rising, which is pushing up ethylene prices as well. Ethylene prices are also rising because of higher gas prices (please see our earlier report: IN: Chemicals - Overall - Feeling the ethylene pinch) Rising naphtha and GRMs are positive for Indian refiners. They are likely to do well till big refining capacities come online in 2024F/25F. We believe that in the coming decade, GRMs can remain structurally higher than the last decade, which augurs well for Indian refiners.

There is significant scope for EPS upgrade

Across-the-board refining companies are likely to see earnings per share or EPS upgrade as consensus estimates pencil in higher GRMs in their models. As of now, Indian Oil Corporation Ltd (IOCL) is our top pick in the refining space followed Hindustan Petroleum Corporation Ltd (HPCL).

Figure 1: Refining demand-supply situation is extremely tight and there is no room for any disruption



SOURCES: INCRED RESEARCH, COMPANY REPORTS

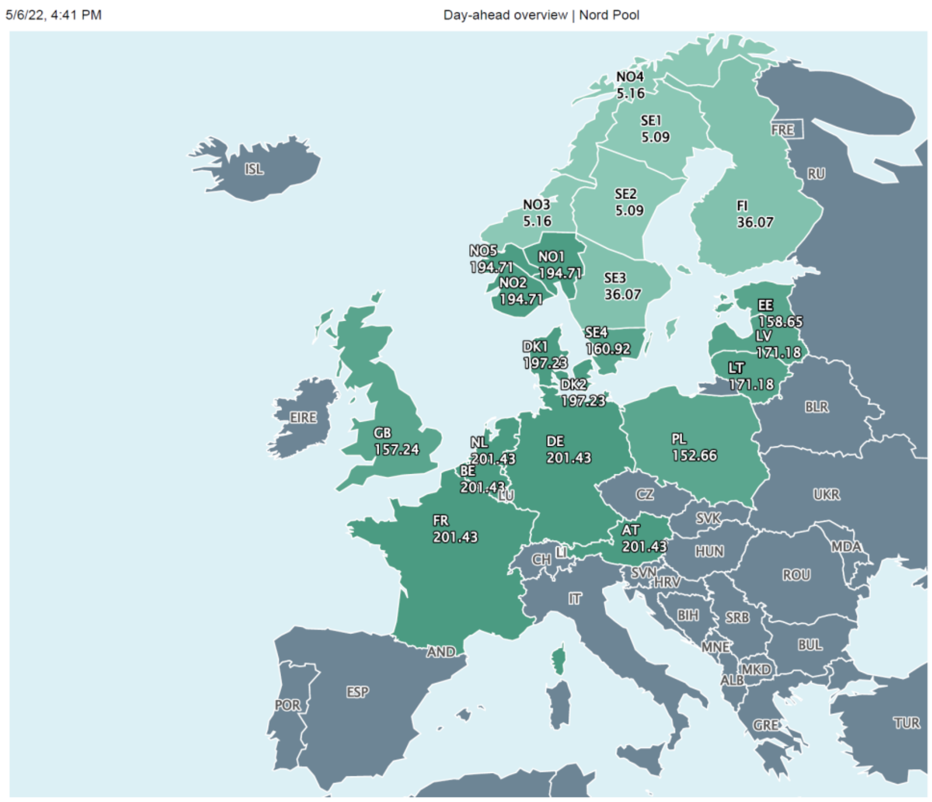
The upcycle is here

EVs will take a backseat for some time in Europe – there is no risk of fuel demand declining in Europe

Till the time electricity prices don't correct 40-50% in Europe, EV adoption will slow down. Given the current geopolitical scenario, it will be very difficult for Europe to bring power prices down because of the following reasons: 1) They cannot accept Russian terms as public opinion is sharply against it. 2) They cannot get cheap LNG easily as there is not enough liquefaction capacity in the world. 3) Coal-fired plants can start in only a 12-15 months' timeframe and for that Europe needs to mine 200mt coal as otherwise high coal prices will not let power prices come down. All these conditions mean that European fuel demand cannot fall fast, and India is way behind the curve on the EV front. China and USA EV adoption is going on which will lead to slower growth, but that's already built in the multiple demand calculations and mostly factored in refining capacity.

Nord pool power prices are sky-high in Europe ›

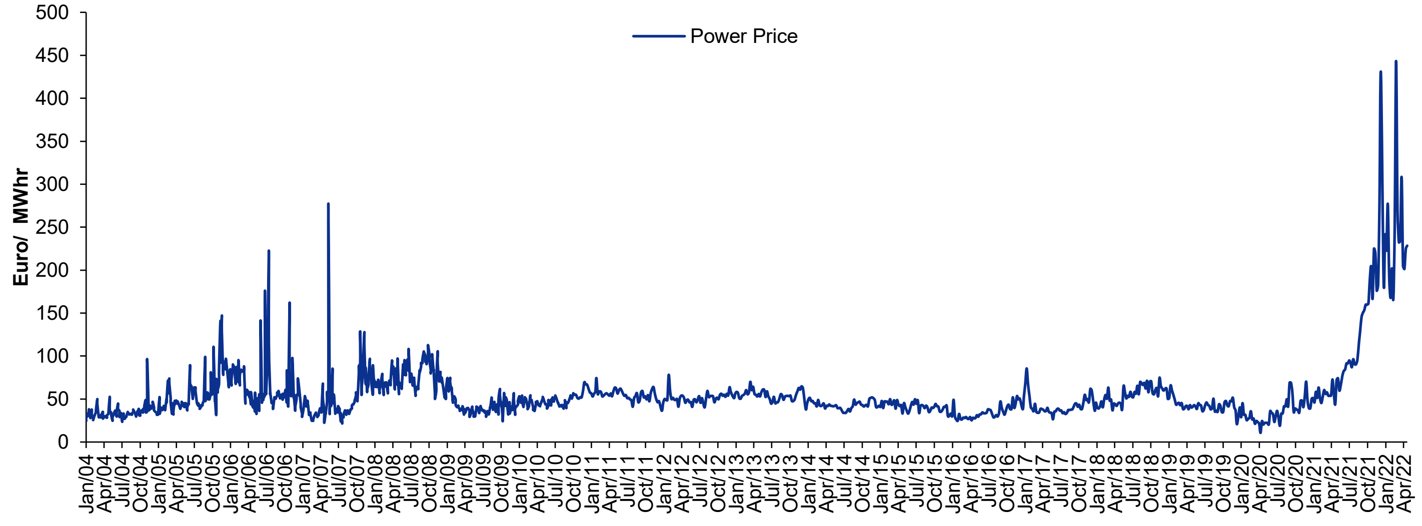
Figure 2: European power prices are touching sky-high at ~150-200 Euro/MWH



SOURCES: INCRED RESEARCH, COMPANY REPORTS HTTPS://WWW.NORDPOOLGROUP.COM/EN/

Similarly, Dutch TTF prices are also touching the stratosphere ➤

Figure 3: Dutch TTF prices are also touching sky-high, which is again negative for EVs



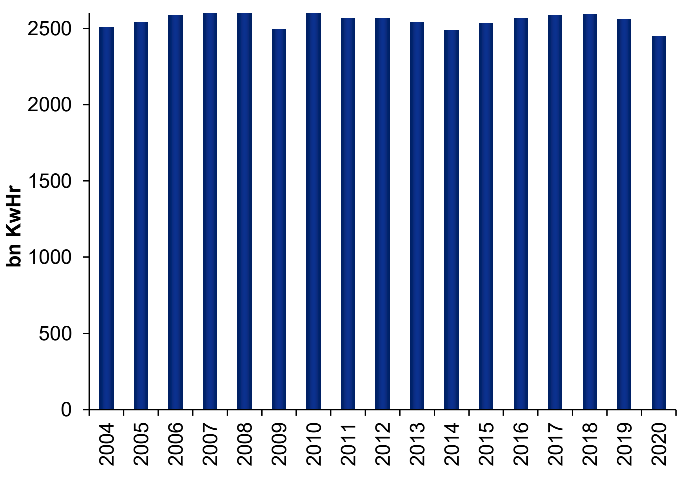
SOURCES: INCRED RESEARCH, COMPANY REPORTS

At current power prices, running an EV is not viable in Europe➤

1. Most EVs can cover up to 100km with 15kwh. At current Dutch TTF prices, the overall power cost for running 100km will cost around US$4.
2. On the other hand, running cars on diesel will cost around US$8 per 100km. This cost differential is even at such high diesel prices.
3. So, till the time the power problem is resolved, the European EV market may not revive big time. The other option to revive the European EV market is to grant a big subsidy on the purchase of the vehicle, which may or may not fructifies given the fiscal situation in Europe.

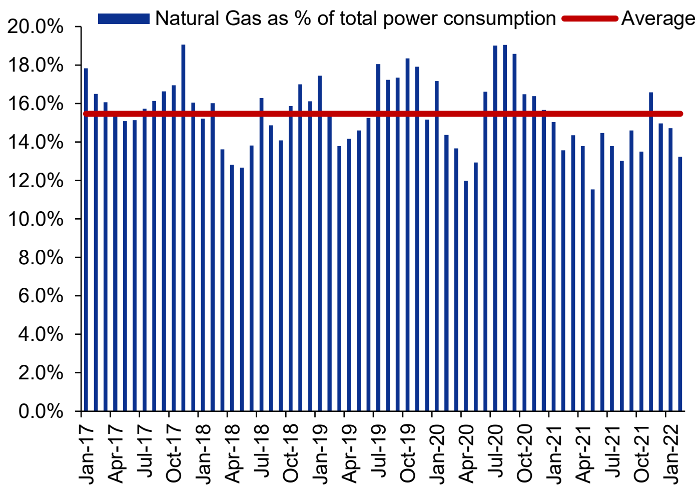
When can the European power situation ease? It depends on the ramp-up of coal-fired plants ➤

Figure 4: European Union's power consumption is approximately 2,500bn kWh



SOURCES: INCRED RESEARCH, COMPANY REPORTS

Figure 5: On an average, 15.5% of total power is generated by natural gas in Europe



SOURCES: INCRED RESEARCH, HTTPS://APPSSO.EUROSTAT.EC.EUROPA.EU/

Figure 6: At present, the fuel cost of generating 1 unit of electricity through natural gas is 23 cents

	Value	Unit
The heat rate of gas-fired plants	2,000.0	Kcal/ kWh
Energy in 1 SCM gas	8,500.0	Kcal
Gas required for 1 kWh	0.24	SCM
Natural gas price in MMBTU	30.0	US$/MMBtu
Natural gas price in SCM	0.96	US$/SCM
Fuel cost for 1 unit of power	0.23	US$/ kWh

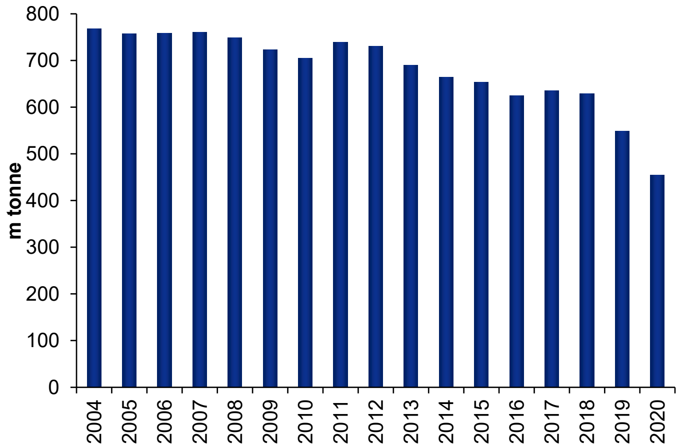
SOURCES: INCRED RESEARCH, COMPANY REPORTS

Figure 7: To replace natural gas-based power, Europe needs 186mt of coal

	Value	Unit
Electricity generated by gas	15.5%	of overall requirement
Overall electricity	2,500	Bn units
Gas-based power	387.5	bn units
The calorific value of coal	5,000	Kcal/kg
1 unit of coal power needs	2,400	Kcal/ kWh
The energy needed from coal to replace gas	9,30,000	bn Kcal
Coal needed	186	MT

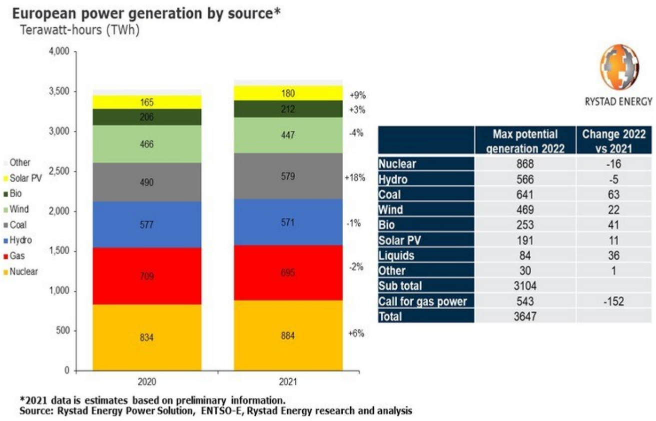
SOURCES: INCRED RESEARCH, COMPANY REPORTS

Figure 8: European coal generation has come down by 200mt in the last three years



SOURCES: INCRED RESEARCH, COMPANY REPORTS

Figure 9: European coal-based power production has increased in 2021, but Europe has closed 57GW of coal-based power plants in the last five years



	Max potential generation 2022	Change 2022 vs 2021
Nuclear	868	-16
Hydro	566	-5
Coal	641	63
Wind	469	22
Bio	253	41
Solar PV	191	11
Liquids	84	36
Other	30	1
Sub total	3104	
Call for gas power	543	-152
Total	3647	

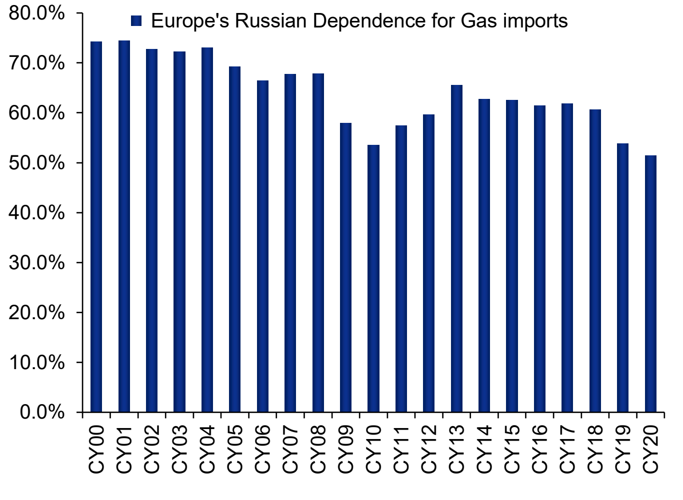
SOURCES: INCRED RESEARCH, COMPANY REPORTS

To replace 15.5% of European power which comes from gas, 51GW of coal-based plants need to operate at 85% plant load factor or PLF, which is not a big task for European planners. The main point is how soon they can fix it? As per our estimate, it may take Europe around a couple of years to fix their self-created problems

Can the European gas problem end soon which can lead to low power prices? We don't see this in the next three years ›

Europe's gas problem is one of its makings. Europe has been over-dependent on Russian gas for the past 20 years. If Russian President Vladimir Putin is using energy as a weapon, then it's Europe's fault that allowed Russia to use energy as a weapon. It's difficult to fathom that Europe has no clue about Putin's motive. Europe's total gas consumption is around 540bcm, out of which ~36% or 200bcm comes from Russia.

Figure 10: Europe imports ~340bcm gas and nearly 60% of that is imported from Russia

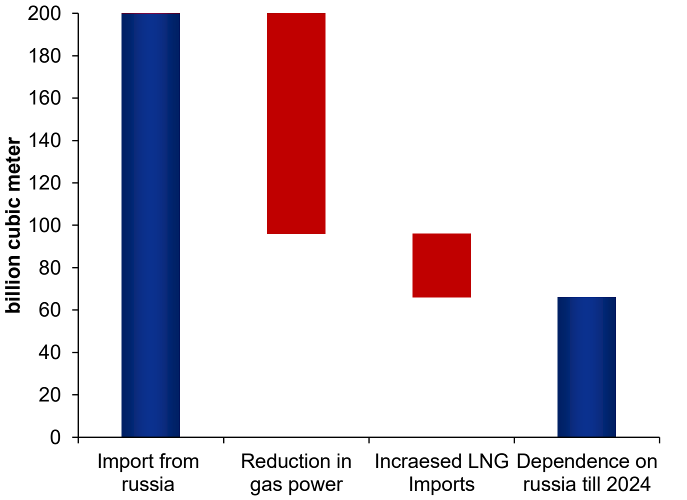


SOURCES: INCRED RESEARCH, COMPANY REPORTS

Figure 11: Russia's contribution to Europe's overall gas consumption is ~36%

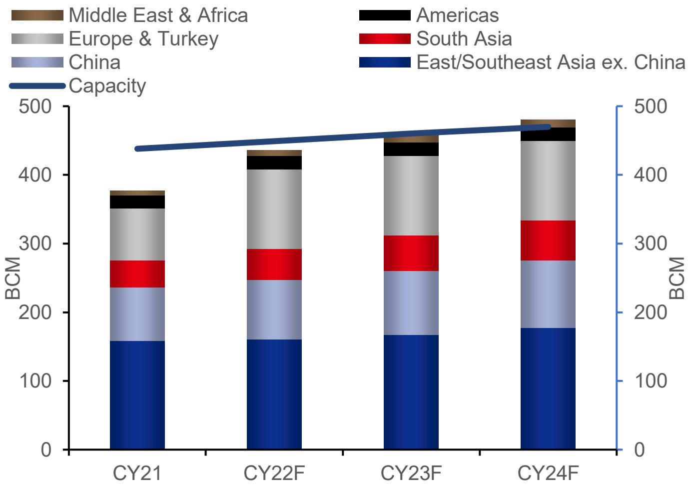
SOURCES: INCRED RESEARCH, COMPANY REPORTS

Figure 12: Europe's dependence on Russia for natural gas won't go away till 2024F (even after assuming a big ramp-up of coal-based power plants) …



SOURCES: INCRED RESEARCH, COMPANY REPORTS

Figure 13: …as global LNG liquefaction capacity is not enough to meet European demand



SOURCES: INCRED RESEARCH, COMPANY REPORTS

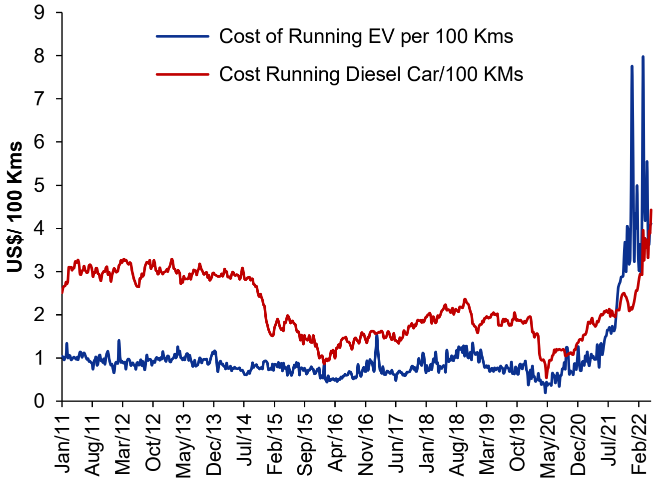
Can the European gas problem end soon which can lead to low power prices? We don't see this happening for the next three years ➤

Given the lack of global liquefaction capacity, there is no way Europe can shun Russia soon. They will try their best to reduce their dependence on Russia but their quest to do the same will keep power prices high.

Hence, EVs cannot take off in a big way in Europe for the next three years and diesel sales won't be hit badly ➤

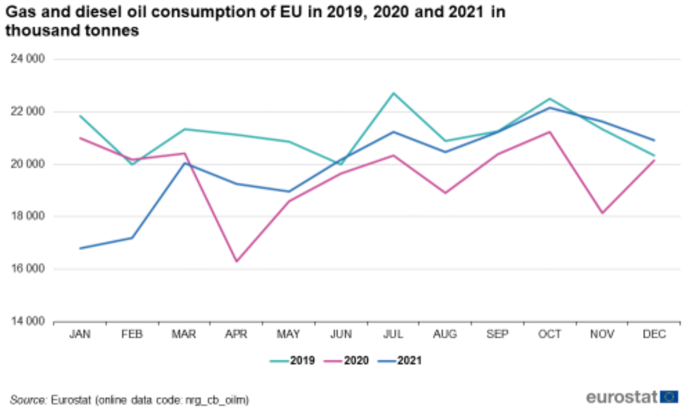
As of now, in Europe, the cost of running an EV per 100km is costlier than that of a diesel-run vehicle (only comparing power cost and diesel cost). Please note this is the scenario when diesel cracks are at an all-time high.

Figure 14: Cost of running EVs on electricity has just skyrocketed in the recent past



SOURCES: INCRED RESEARCH, COMPANY REPORTS

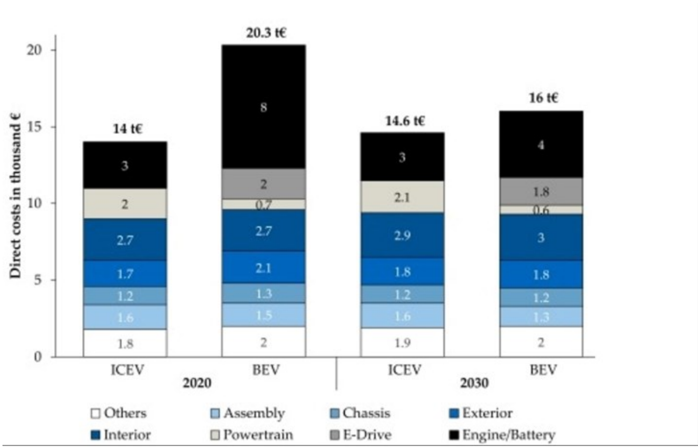
Figure 15: European diesel consumption bottomed out in 2020 and 2021 started going higher



SOURCES: INCRED RESEARCH, HTTPS://EC.EUROPA.EU/EUROSTAT/STATISTICS-EXPLAINED/INDEX.PHP?TITLE=ENERGY_STATISTICS_-_LATEST_TRENDS_FROM_MONTHLY_DATA#CONSUMPTION_OF_PETROLEUM_PRODUCTS

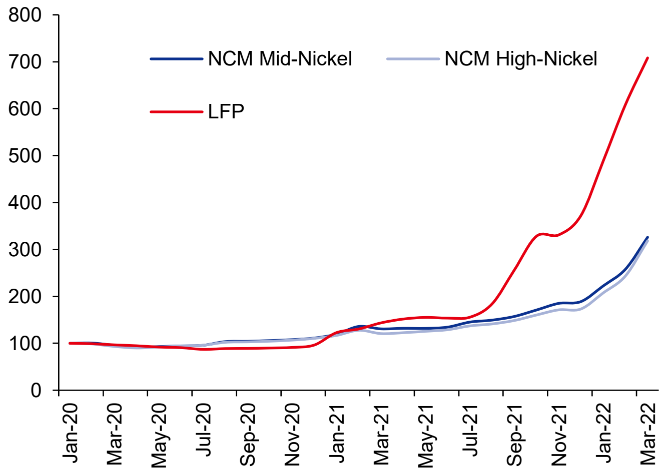
The capital cost of EVs is so high that at present (even at ultra-high diesel prices) running a diesel car is more economical ➤

Figure 16: The capital cost of EV is still 45% higher and even by 2030F it will remain 10% higher; thus, a lower price is needed for the success of EV



SOURCES: COMPANY REPORTS, INCRED RESEARCH

Figure 17: Rising battery raw material cost is making the case of EV even weaker



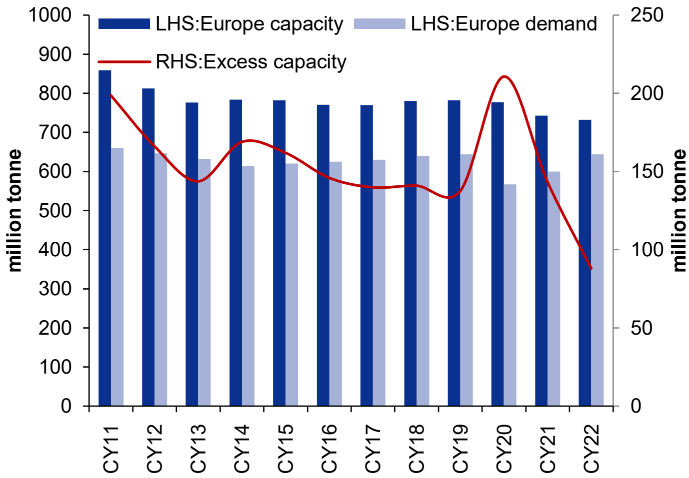
SOURCES: COMPANY REPORTS, INCRED RESEARCH

Hence, unless power prices fall (which is unlikely in the next two-to-three years), fuel demand won't take a big knock in Europe ➤

We don't believe diesel demand will witness a huge fall in the coming two-to-three years unless power prices fall by -40-50%. Such a steep fall can come only if the world returns to complete normalcy. However, given the current geopolitical situation, such a dream is very wild.

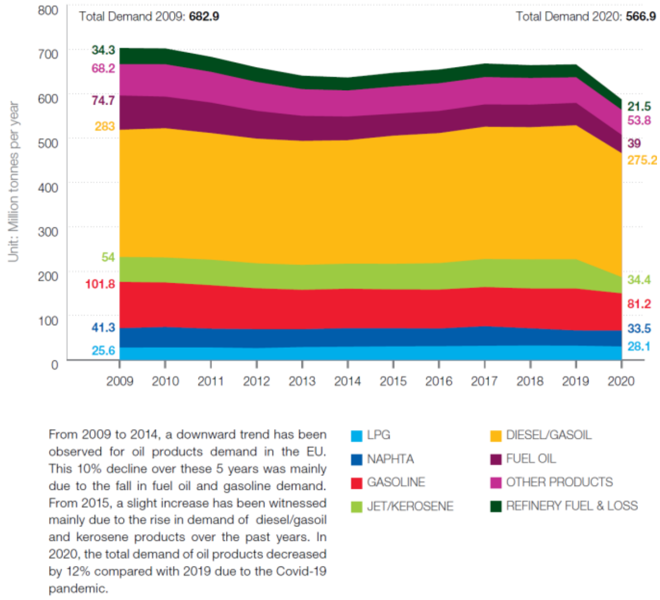
If there is no demand shock, then Europe is likely to face a shortage of refined crude oil products ➤

Figure 18: Europe had cut refining capacities aggressively as it expected EVs to become a driver of consumer demand



SOURCES: INCRED RESEARCH, COMPANY REPORTS

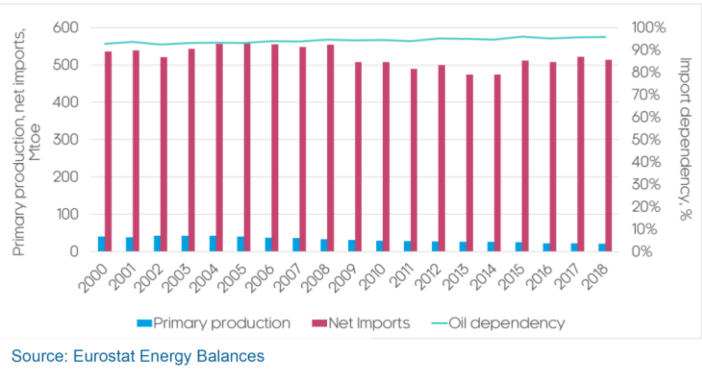
Figure 19: After Covid-led demand decline, demand for refined products is back with a vengeance, more so when gas is very costly



SOURCES: INCRED RESEARCH, HTTPS://WWW.FUELSEUROPE.EU/WP-CONTENT/UPLOADS/SR_FUELSEUROPE-_2021_FINAL-REPORT-1.PDF

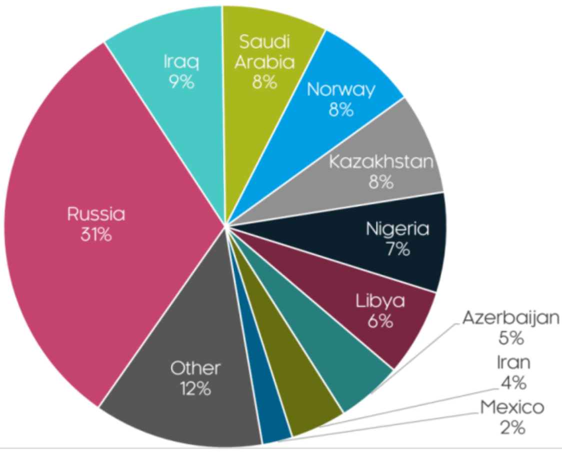
Europe is still highly dependent on Russian crude oil, which makes it difficult for many plants to operate fully ➤

Figure 20: Europe is more than 95% dependent on external oil sources



SOURCES: INCRED RESEARCH, HTTPS://WWW.TRANSPORTENVIRONMENT.ORG/WP-CONTENT/UPLOADS/2021/07/2020_CE_OIL_DEPENDENCY_IN_EU_REPORT.PDF

Figure 21: Europe is highly dependent on Russian crude oil and hence, given the political turmoil much of its refining capacity can remain idle



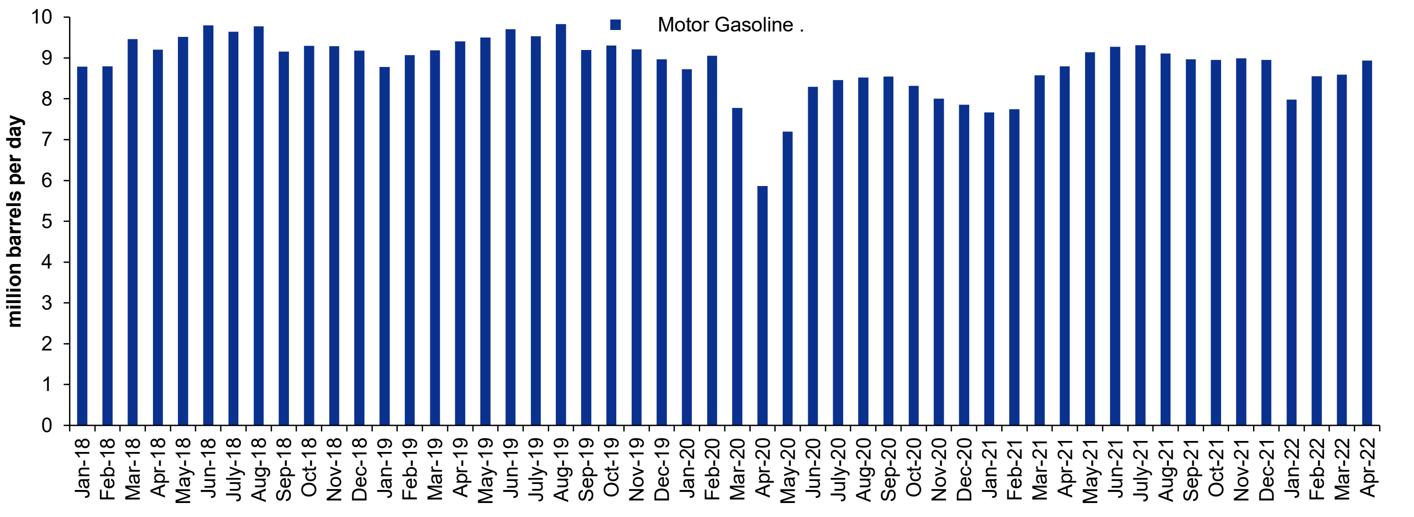
SOURCES: INCRED RESEARCH, COMPANY REPORTS

USA fuel consumption coming to pre-pandemic level

The USA is another major gasoline market after Europe and here also motor fuel demand is coming back to pre-Covid level. The USA has another problem - it is short of fuel refining capacity.

USA motor fuel demand is coming back to the pre-pandemic level ➤

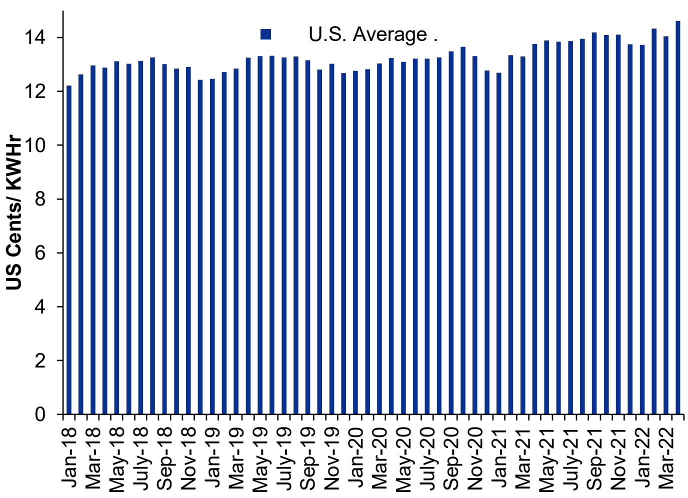
Figure 22: USA motor fuel demand is coming back to the pre-pandemic level



SOURCES: INCRED RESEARCH, HTTPS://WWW.EIA.GOV/OUTLOOKS/STEO/DATA.PHP

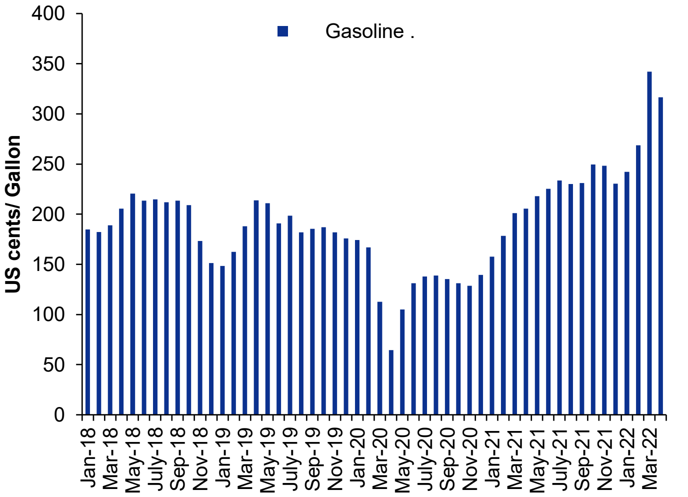
High power prices in the USA (even in normal time makes sure that EV adoption will be gradual ➤

Figure 23: Average US residential electricity prices are touching US$0.15/ kWh



SOURCES: COMPANY REPORTS, INCRED RESEARCH

Figure 24: As of now, the average gasoline price is around US$3.1 per gallon

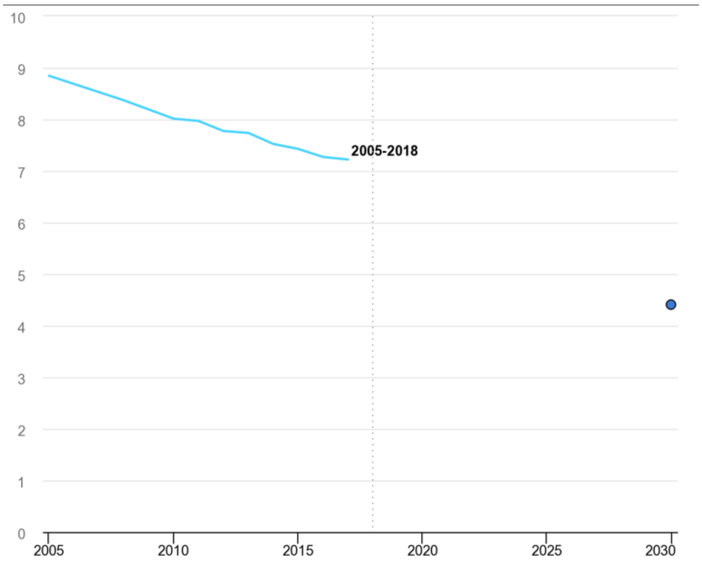


SOURCES: COMPANY REPORTS, INCRED RESEARCH

The running cost of an EV is still higher than a diesel-driven vehicle in the USA

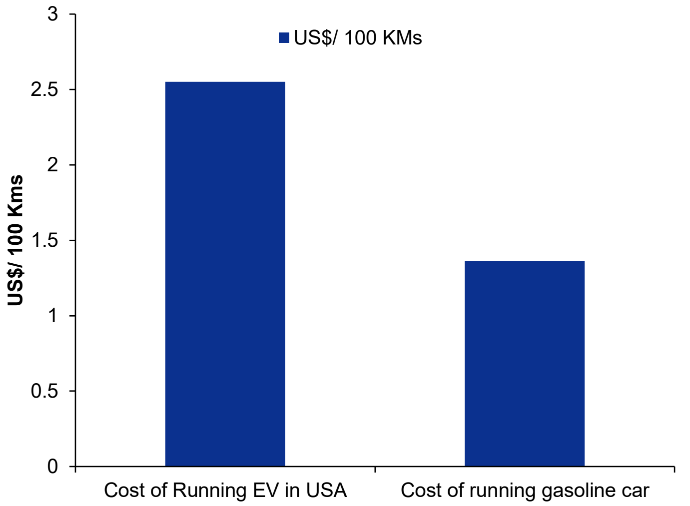
Normally an EV requires around 17 kWh to run 100km whereas a gasoline-driven car needs around 9L (litre) for 100km.

Figure 25: Fuel efficiency of a gasoline car is increasing



SOURCES: INCRED RESEARCH, HTTPS://WWW.IEA.ORG/DATA-AND-STATISTICS/CHARTS/AVERAGE-FUEL-CONSUMPTION-OF-NEW-LIGHT-DUTY-VEHICLES-SOLD-2005-17-AND-SDS-TRAJECTORY-TO-2030

Figure 26: Even at current prices of gasoline, running a gasoline car is cheaper than an EV in the USA

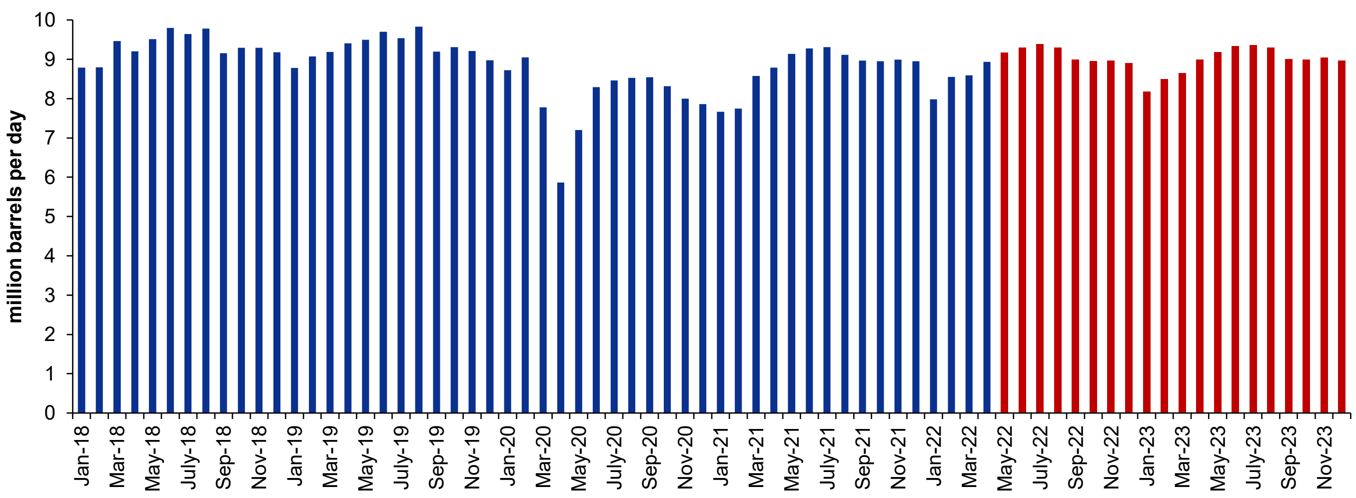


SOURCES: INCRED RESEARCH, COMPANY REPORTS

So, can fuel demand fall precipitously in the USA? No, if at all it falls, it will be very gradual

Hence, fuel demand will be steady in the USA. That's why even its government is not forecasting any big fall in fuel demand over the next two years. 5-6 Sigma events notwithstanding, US fuel demand remains around 10m bbl per day.

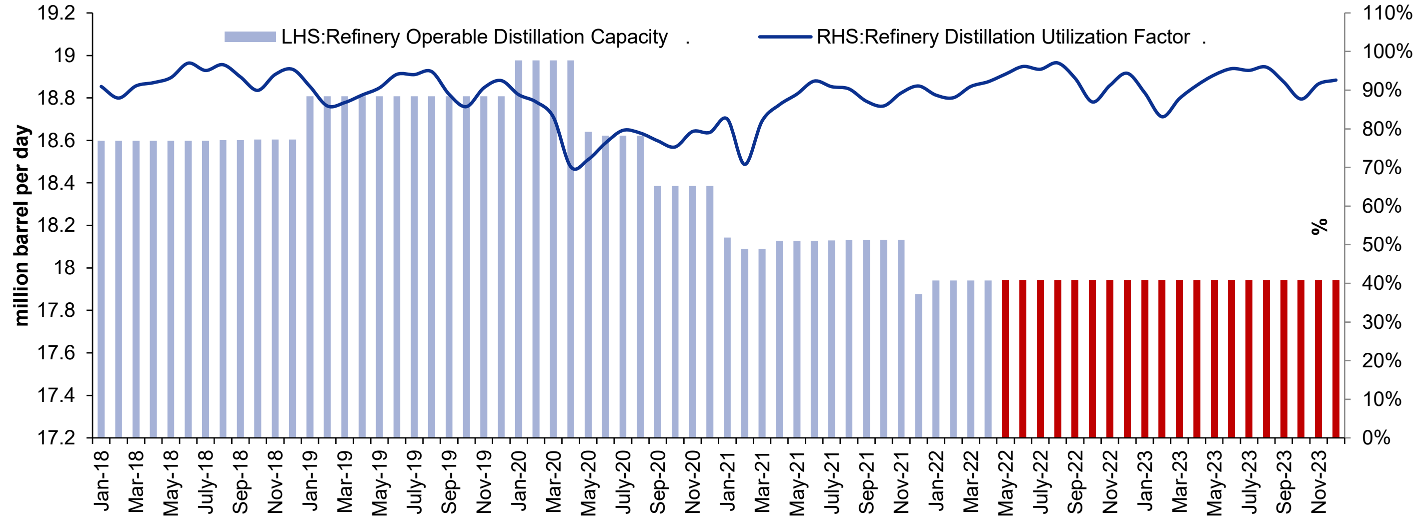
Figure 27: Energy Information Administration (EIA) is projecting that US gasoline demand will remain steady at around 10m bbl for the next couple of years (red bars in the graph indicates EIA projections)



SOURCES: INCRED RESEARCH, WWW.EIA.COM *Red lines are the projection by EIA

It is also interesting to note that USA refining capacity is short of requirement as some capacity has been curtailed ➤

Figure 28: USA refining capacity has been curtailed by ~1m bbl and over the next 1.5 years it is expected that utilization level in refineries will remain more than 92% and, in some months, even around 96%

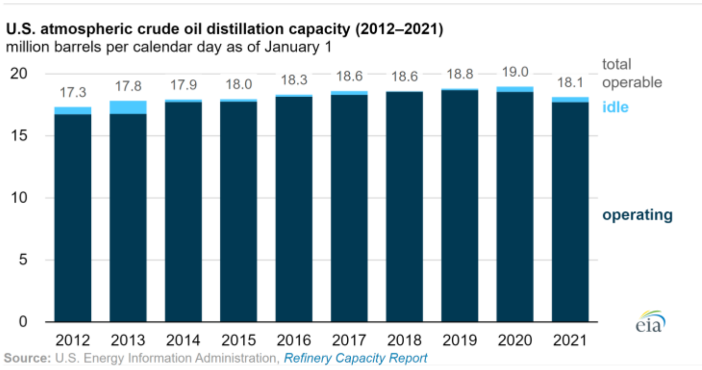


SOURCES: INCRED RESEARCH, COMPANY REPORTS

It is worthwhile to note that EIA assumes very high capacity utilization for a long time span ➤

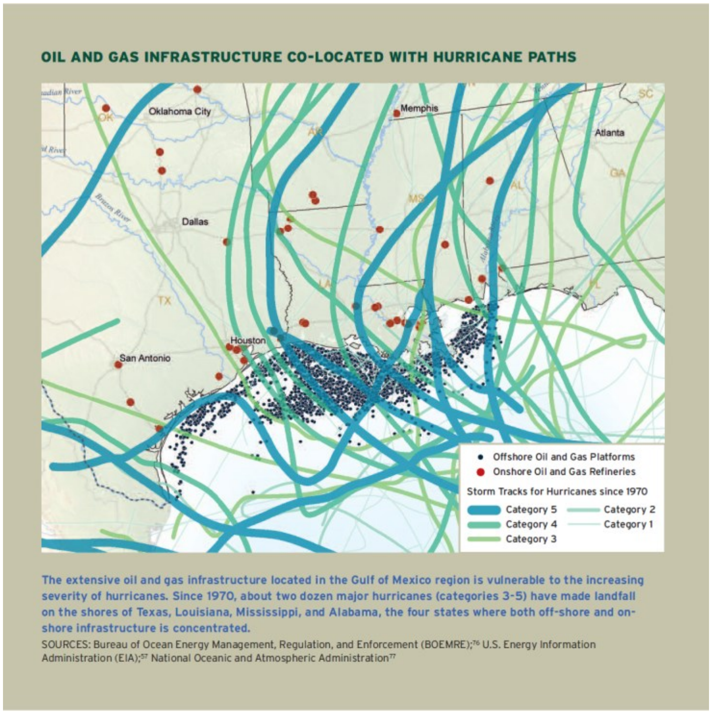
We have seen multiple refineries operating at 90%+ utilization for a long time However, it's very difficult for a system to operate at 90% utilization for two years. There are multiple unknowns, more so in an extreme weather zone like that of the USA.

Figure 29: The USA has cut refining capacity by 1m bpd over the last two years



SOURCES: COMPANY REPORTS, INCRED RESEARCH

Figure 30: 8.7m bpd (47% of total) capacity in the USA is in extreme weather zone and hence, we are highly cautious of sustained 90%+ capacity utilization assumption



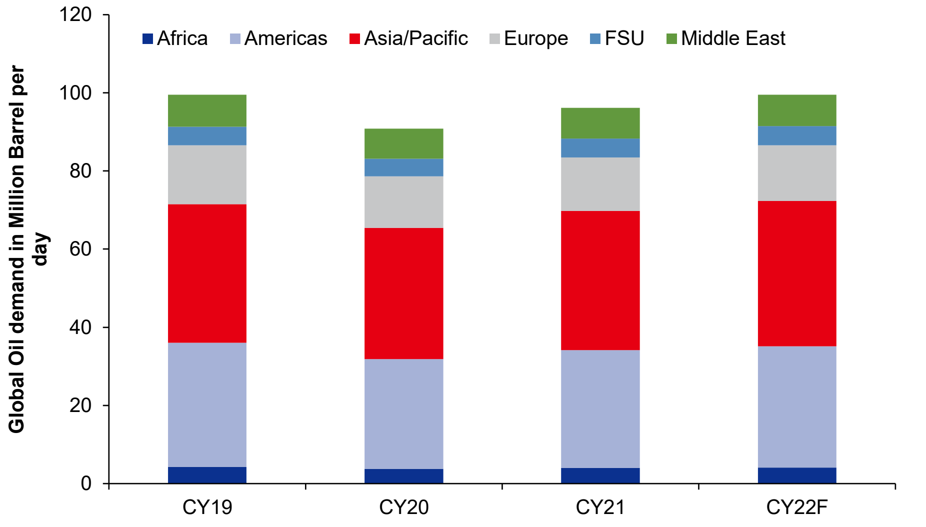
SOURCES: WWW.NWF.ORG, INCRED RESEARCH

Global refining capacity is short of the requirement

With the above two sections, we have tried to dispel the common misconception that EV usage will lead to a big decline in fuel consumption, and hence, refineries' output will remain in the oversupply zone. We argue that like natural gas slope, GRMs are on a structural growth path. There will be volatility, but for the next five years, the average GRM will remain much higher than the last five years.

Global demand for oil will reach a pre-Covid level in CY22F

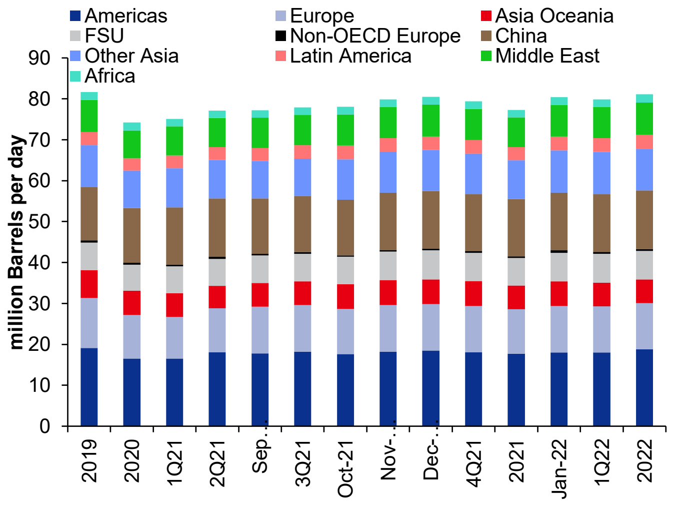
Figure 31: In CY22F, global demand for oil will reach a pre-pandemic level



SOURCES: COMPANY REPORTS, INCRED RESEARCH

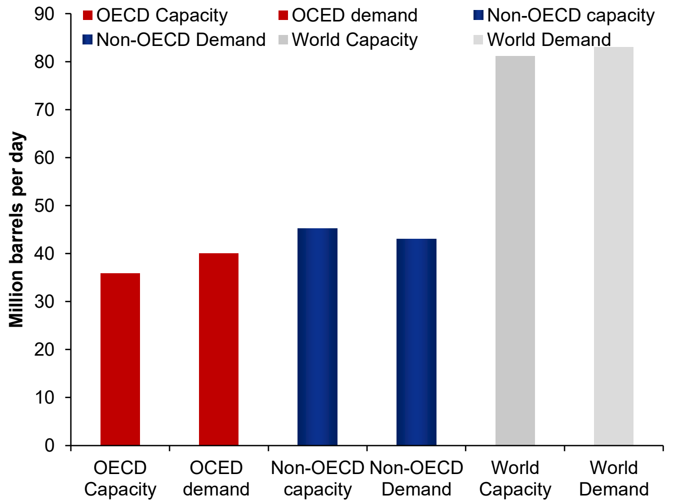
However, ex-ethane and LPG refining capacity is short of the requirement

Figure 32: Global refining capacity availability (ex-ethane LPG) remains at ~81.5 m bbl per day



SOURCES: INCRED RESEARCH, INTERNATIONAL ENERGY AGENCY FORECASTS

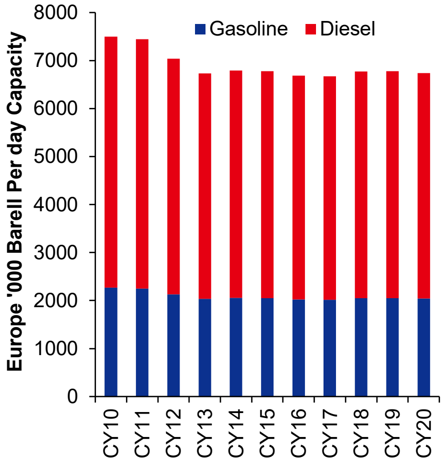
Figure 33: However, even assuming the world reaches pre-pandemic level in CY22F (no growth) capacity is short by at least 1.5-2 m bbl per day



SOURCES: INCRED RESEARCH, INTERNATIONAL ENERGY AGENCY FORECASTS

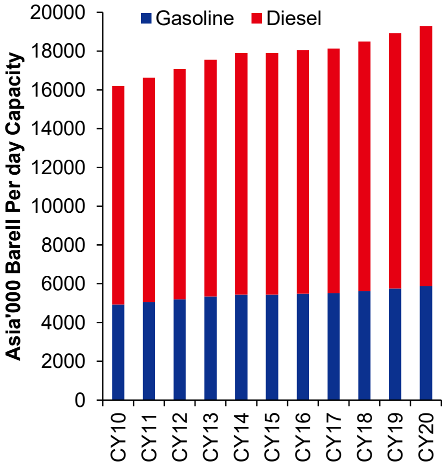
Apart from Asia, other continents have not seen any significant increase in fuel refining capacity

Figure 34: Gasoline and diesel refining capacity in Europe has come down over CY10/11



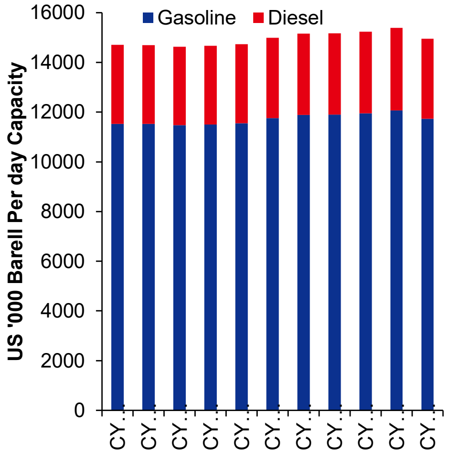
SOURCES: COMPANY REPORTS, INCRED RESEARCH

Figure 35: Asia has increased its fuel production capacity



SOURCES: COMPANY REPORTS, INCRED RESEARCH

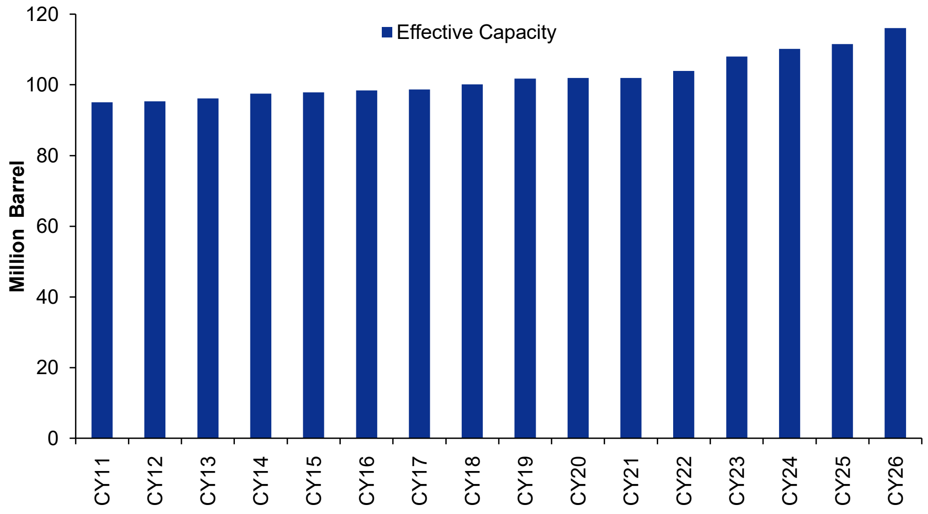
Figure 36: The USA has also witnessed a decline in its fuel production capacity



SOURCES: COMPANY REPORTS, INCRED RESEARCH

Global refining capacity addition (including ethane and LPG) is poised to reach 116m bbl per day in 2026F

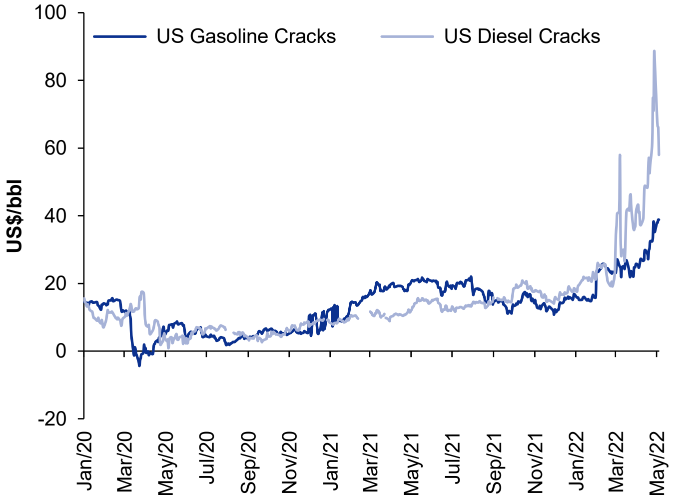
Figure 37: By 2026F, effective capacity will be 116m bbl per day



SOURCES: INCRED RESEARCH, COMPANY REPORTS

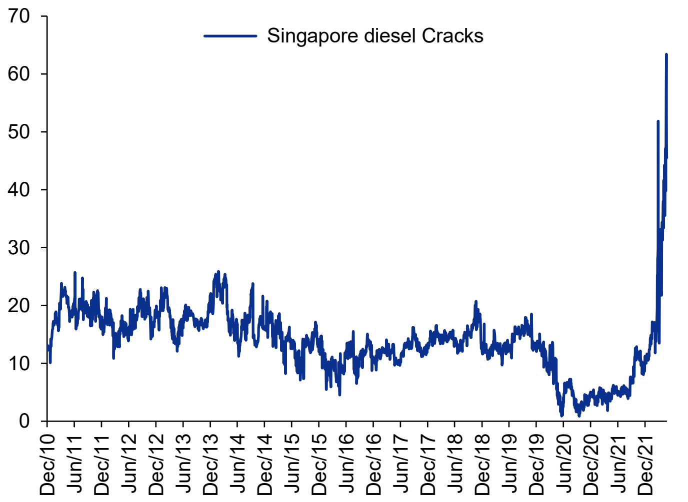
Naturally, diesel, gasoline, and other cracks are going up

Figure 38: Western world diesel cracks are rising…



SOURCES: INCRED RESEARCH, BLOOMBERG

Figure 39: …and the same is happening in Asia as well

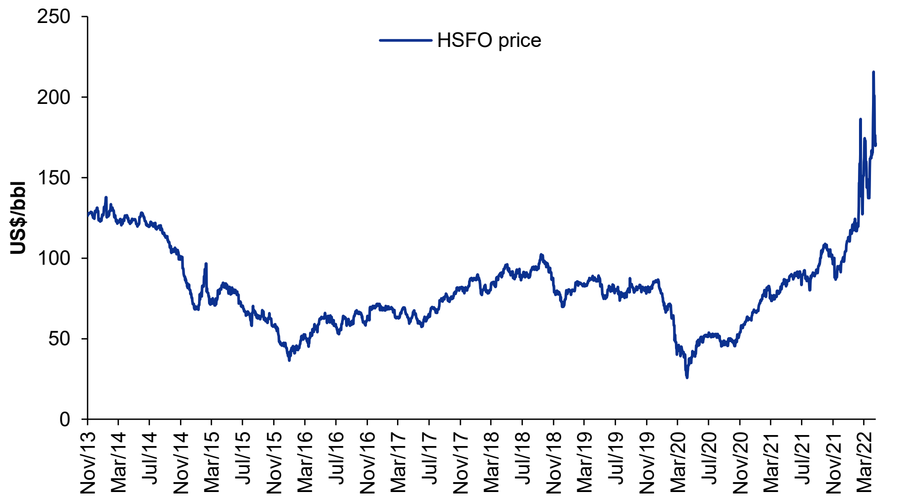


SOURCES: INCRED RESEARCH, COMPANY REPORTS

Most Indian refineries are naturally designed to produce more diesel, which is good for their profitability

Indian refiners are designed to produce more diesel and high sulfur fuel oil or HSFO, which is good for their profitability.

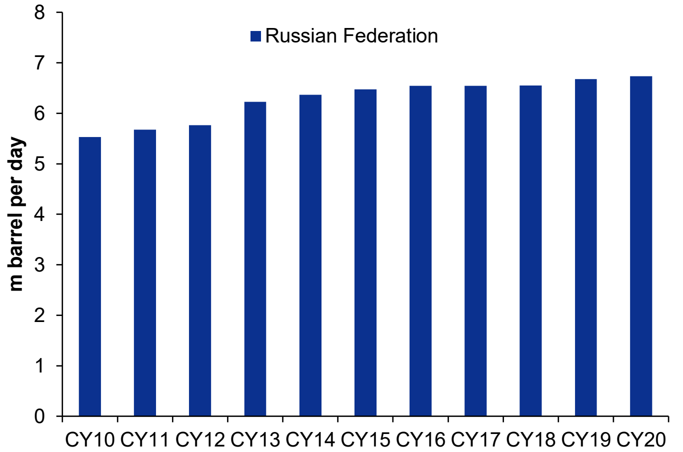
Figure 40: HSFO prices are skyrocketing, which is again good for reported GRMs of Indian refiners



SOURCES: INCRED RESEARCH, COMPANY REPORTS

Russia is a joker in the pack, as per global calculations»

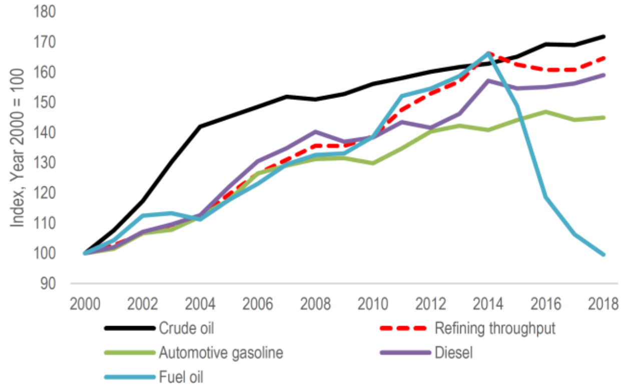
Figure 41: Russian refining capacity is 6.7m bbl per day, which is 6% of the overall global refining capacity



SOURCES: INCRED RESEARCH, COMPANY REPORTS

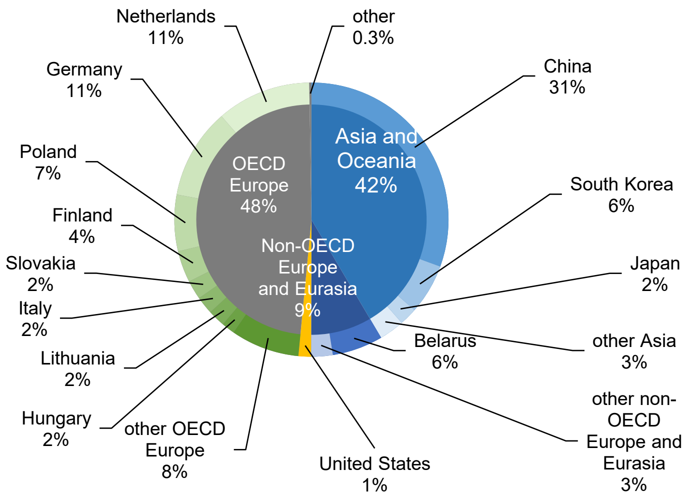
Figure 42: Russia is also a major diesel producer

Russian crude oil and refined products output index



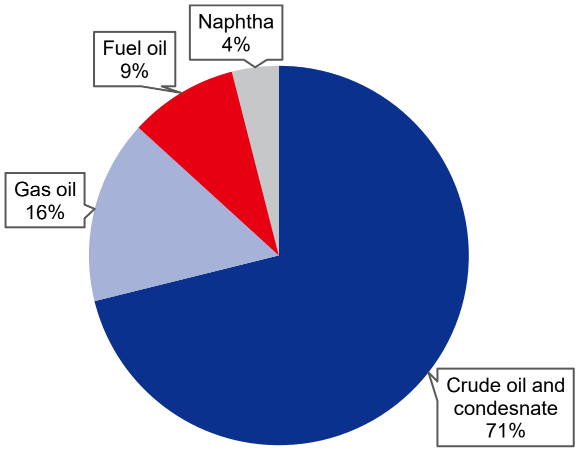
SOURCES: INCRED RESEARCH, HTTPS://WWW.JSTOR.ORG/

Figure 43: 48% of Russian exports of oil and condensate are destined for OECD countries



SOURCES: INCRED RESEARCH, WWW.IEA.ORG

Figure 44: Out of global exports of 7.8 m bbl/day, naphtha accounts for 0.28, fuel oil 0.65, and gas oil is 1.10 m bbl

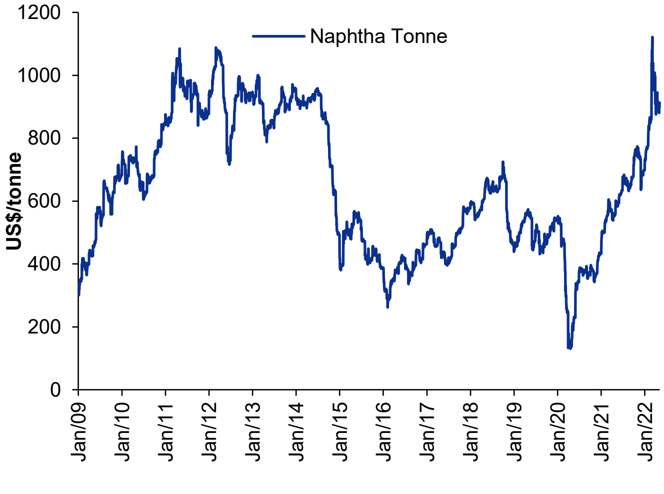


SOURCES: INCRED RESEARCH, WWW.IEA.ORG

Naphtha is of particular interest to Indian refiners as less Russian supply means very high naphtha prices and cracks over oil

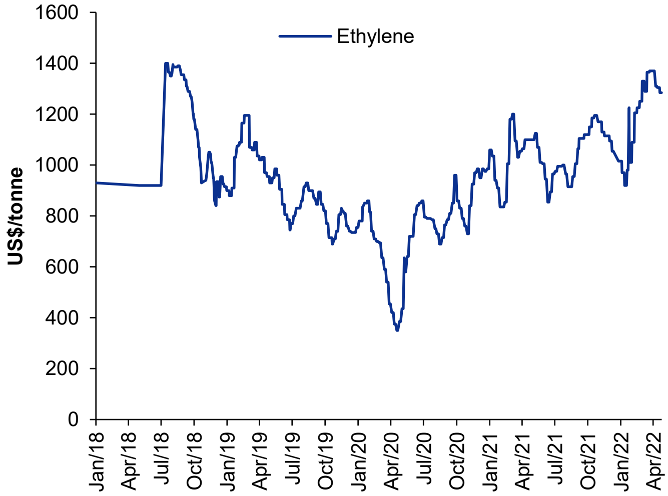
India is one of the major producers and users of naphtha. It used naphtha to make urea as well as ethylene. A pariah status for Russia can lead to less supply of 32 MT of naphtha in the global market, which can lead to higher prices for naphtha.

Figure 45: Naphtha shortage is showing in the global market and as a result, prices have gone beyond the 2012 peak level



SOURCES: INCRED RESEARCH, COMPANY REPORTS

Figure 46: Driven by naphtha unavailability and higher natural gas prices, ethylene prices are also rising



SOURCES: INCRED RESEARCH, COMPANY REPORTS

We have covered the drivers of ethylene prices and their impact on the chemical value chain in our recently published report: IN: Chemicals - Overall - Feeling the ethylene pinch

Many Indian refiners are big producers of Naptha and stand to benefit from rising prices

Most Indian refiners, integrated as well as standalone, stand to benefit from higher naphtha prices as almost all of them supply it for manufacturing urea or the export market.

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Corporate Governance Report:

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The survey result is as of the date appearing in the Corporate Governance Report of Thai Listed Companies. As a result, the survey result may be changed after that date. CGS-CIMB Thailand does not confirm nor certify the accuracy of such survey result.

Score Range:	90 - 100	80 – 89	70 - 79	Below 70	No Survey Result
Description:	Excellent	Very Good	Good	N/A	N/A

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Corporate Governance Report of Thai Listed Companies (CGR). CG Rating by the Thai Institute of Directors Association (Thai IOD) in 2021, Anti-Corruption 2021

ADVANC – Excellent, Certified, **AMATA** – Excellent, Certified, **ANAN** – Excellent, n/a, **AOT** – Excellent, n/a, **AP** – Excellent, Certified, **ASP** – Excellent, n/a, **AWC** – Excellent, Declared, **AU** – Good, n/a, **BAM** – Very Good, Certified, **BAY** – Excellent, Certified, **BBL** – Excellent, Certified, **BCH** – Very Good, Certified, **BCP** - Excellent, Certified, **BCPG** – Excellent, Certified, **BDMS** – Excellent, n/a, **BEAUTY** – Good, n/a, **BEM** – Excellent, n/a **BH** - Good, n/a, **BJC** – Very Good, n/a, **BLA** – Very Good, Certified, **BTS** - Excellent, Certified, **CBG** – Very Good, n/a, **CCET** – n/a, n/a, **CENTEL** – Excellent, Certified, **CHAYO** – Very Good, n/a, **CHG** – Very Good, n/a, **CK** – Excellent, n/a, **COM7** – Excellent, Certified, **CPALL** – Excellent, Certified, **CPF** – Excellent, Certified, **CPN** - Excellent, Certified, **CPNREIT** – n/a, n/a, **CRC** – Excellent, Declared, **DELTA** - Excellent, Certified, **DDD** – Excellent, n/a, **DIF** – n/a, n/a, **DOHOME** – Very Good, Declared, **DREIT** – n/a, n/a, **DTAC** – Excellent, Certified, **ECL** – Excellent, Certified, **EGCO** - Excellent, Certified, **EPG** – Excellent, Certified, **ERW** – Very Good, Certified, **GFPT** - Excellent, Certified, **GGC** – Excellent, Certified, **GLOBAL** – Excellent, n/a, **HANA** - Excellent, Certified, **HMPRO** - Excellent, Certified, **HUMAN** – Good, n/a, **ICHI** – Excellent, Certified, **III** – Excellent, Declared, **INTUCH** - Excellent, Certified, **IRPC** – Excellent, Certified, **ITD** – Very Good, n/a, **IVL** - Excellent, Certified, **JASIF** – n/a, n/a, **JKN** – n/a, Certified, **JMT** – Very Good, n/a, **KBANK** - Excellent, Certified, **KCE** - Excellent, Certified, **KEX** – Very Good, Declared, **KKP** – Excellent, Certified, **KSL** – Excellent, Certified, **KTB** - Excellent, Certified, **KTC** – Excellent, Certified, **LH** - Excellent, n/a, **LPN** – Excellent, Certified, **M** – Very Good, Certified, **MAKRO** – Excellent, Certified, **MC** – Excellent, Certified, **MEGA** – Very Good, n/a, **MINT** - Excellent, Certified, **MTC** – Excellent, Certified, **NETBAY** – Very Good, n/a, **NRF** – Very Good, Declared, **OR** – Excellent, n/a, **ORI** – Excellent, Certified, **OSP** – Excellent, n/a, **PLANB** – Excellent, Certified, **PRINC** – Very Good, Certified, **PR9** – Excellent, Declared, **PSH** – Excellent, Certified, **PTT** - Excellent, Certified, **PTTEP** - Excellent, n/a, **PTTGC** - Excellent, Certified, **QH** – Excellent, Certified, **RAM** – n/a, n/a, **RBF** – Very Good, n/a, **RS** – Excellent, Declared, **RSP** – Good, n/a, **S** – Excellent, n/a, **SAK** – Very Good, Declared, **SAPPE** – Very Good, Certified, **SAWAD** – Very Good, n/a, **SCB** - Excellent, Certified, **SCC** – Excellent, Certified, **SCGP** – Excellent, Declared, **SECURE** – n/a, n/a, **SHR** – Excellent, n/a, **SIRI** – Excellent, Certified, **SPA** – Very Good, n/a, **SPALI** - Excellent, Certified, **SPRC** – Excellent, Certified, **SSP** - Good, Certified, **STEC** – Excellent, n/a, **SVI** – Excellent, Certified, **SYNEX** – Very Good, Certified, **TCAP** – Excellent, Certified, **THANI** – Excellent, Certified, **TIDLOR** – n/a, Certified **TISCO** - Excellent, Certified, **TKN** – Very Good, n/a, **TOP** - Excellent, Certified, **TRUE** – Excellent, Certified, **TTB** - Excellent, Certified, **TU** – Excellent, Certified, **TVO** – Excellent, Certified, **VGI** – Excellent, Certified, **WHA** – Excellent, Certified, **WHART** – n/a, n/a, **WICE** – Excellent, Certified, **WORK** – Good, n/a.

- CG Score 2021 from Thai Institute of Directors Association (IOD)
- Companies participating in Thailand's Private Sector Collective Action Coalition Against Corruption programme (Thai CAC) under Thai Institute of Directors (as of August 5, 2021) are categorised into: companies that have declared their intention to join CAC, and companies certified by CAC.

Recommendation Framework

Stock Ratings	Definition:
Add	The stock's total return is expected to exceed 10% over the next 12 months.
Hold	The stock's total return is expected to be between 0% and positive 10% over the next 12 months.
Reduce	The stock's total return is expected to fall below 0% or more over the next 12 months.

The total expected return of a stock is defined as the sum of the: (i) percentage difference between the target price and the current price and (ii) the forward net dividend yields of the stock. Stock price targets have an investment horizon of 12 months.

Sector Ratings	Definition:
Overweight	An Overweight rating means stocks in the sector have, on a market cap-weighted basis, a positive absolute recommendation.
Neutral	A Neutral rating means stocks in the sector have, on a market cap-weighted basis, a neutral absolute recommendation.
Underweight	An Underweight rating means stocks in the sector have, on a market cap-weighted basis, a negative absolute recommendation.

Country Ratings	Definition:
Overweight	An Overweight rating means investors should be positioned with an above-market weight in this country relative to benchmark.
Neutral	A Neutral rating means investors should be positioned with a neutral weight in this country relative to benchmark.
Underweight	An Underweight rating means investors should be positioned with a below-market weight in this country relative to benchmark.