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THEIR VIEW

Does a bright future lie beyond the gloomy economic horizon?

Green hydrogen and new carbon-capturing technologies could do for the 21st century what the steam engine did for the 19th



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We are living through difficult times. The horizon looks gloomy on both the economic and the political fronts, even more so globally than within India. However, limiting this column to the economic front, there are reasons to expect that a promising future lies beyond the gloomy horizon that faces us in the immediate future.

The economic outlook on the home front is a policymaker's nightmare: declining growth combined with high inflation. Stripping away the base effect that has driven high growth in the first quarter of this year (Q1 of 2022-23) reveals that the economy is actually on a sub-5% growth path. However, without sustained long-term growth of 7-8% our massive backlog of unemployment and under-employment is only going to get worse.

Drawing on an interesting parallel between the period 1998-2002 and 2016-2022, Chief Economic Advisor V. Anantha Nageswaran has argued in a column in *Mint* on 18 October ([bit.ly/3MMONta](#)) that now, as then, the growth-stimulating effects of significant structural reforms have been muted by repeated shocks. He assesses that as the effects of the shocks wane, the lagged impact of these reforms will drive up India's growth to over 6%. If external demand turns favourable, growth could even exceed 8%, as during 2003-2008.

The reference to external demand conditions necessary for sustaining 8% growth is key. Based on the latest *World Economic Outlook* of the International Monetary Fund (IMF), T.N. Ninan pointed out on 15 October in *Business Standard* that during the 2001-11 period of record 8-9% growth in India, its growth was actually lower than the average for all developing and emerging market economies. In other words, India grows exceptionally fast when the world is also growing exceptionally fast. Thus, achieving our aspiration of growing at 8% or so will depend critically on the state of the global economy.

So, what is the global economic outlook? In the short-term, the world is headed for stagflation, a sharp dip in growth this year—even recession in some advanced economies—along with high inflation. But the important question is what lies beyond this gloomy horizon? In my view, the long-term global economic outlook will largely depend on what happens on the climate front. Global warming has been rightly described as the greatest threat being faced by humanity.

The narrative on this subject has been dominated by the frightening consequences of average global temperatures rising beyond 1.5° Celsius. But the lay public is not much aware of the phenomenal technological progress that has been achieved

in combating global warming. Essentially, the problem has been 'cracked', as they say, but the deployment of these new technologies is just starting. Two technologies in particular stand out, production of green hydrogen and CO2 capture from the air.

The use of renewable energy sources is growing at an unprecedented pace. But fossil fuels emitting CO2 still account for 85% of total energy consumption, the root cause of global warming, and that share is rising. Green hydrogen is the technology to address this challenge. It refers to hydrogen produced through electrolysis of water using renewable power. Though hydrogen is widely used in industrial production, use of green hydrogen is just starting. With the cost of green hydrogen production declining from \$6/kg in 2015 to an estimated \$3/kg by 2025, new investments are underway on a massive scale in 25 countries across the world to switch to green hydrogen. The fuel will be used in a wide range of industries including steel, cement, ammonia for fertilizers, home cooking and heating, heavy-duty transportation such as trucks, shipping and air transport, power generation and blending with natural gas. The market for green hydrogen, barely worth \$900 million in 2020, could grow to over \$1 trillion by 2050, according to some estimates.

The shift to green hydrogen will sharply reduce CO2 emissions, but it is not carbon neutral and certainly not carbon negative, which is what is required to combat global warming. There is now a

race among competing technologies that capture CO2 from industrial emissions or from the air and break down and convert the molecule for use in products such as fuels, plastics and other polymers, building materials, etc. Perhaps the most promising of these technologies are those which synthetically reproduce the natural photosynthesis process of plants and improve upon it to directly consume CO2 from the air for useful applications. These technologies exist, but need to be refined and scaled up massively to eventually reduce the CO2

in the atmosphere. Direct carbon capture is again a startup industry with a market of less than \$1 billion. But it is expected to grow to \$550 billion by 2040 according to some estimates.

Clearly there is still a long way to go. The road map is clear and the required technologies are now available for green hydrogen and CO2 capture, which can be further refined. The challenge is to mobilise the huge investments that will be required globally to deploy these technologies at sufficient scale to arrest and eventually reverse global warming. The huge investments

required for the worldwide deployment of these technologies could set off a new investment boom and a new wave of other product and process innovations which could drive a new phase of high global economic growth. Green hydrogen and CO2 capturing technologies could do for the 21st century what the steam engine did for the 19th century.

These are the author's personal views.

QUICK READ

The climate change narrative has been dominated by the crisis of global warming but much more technological progress has been made to solve this problem than is commonly recognized.

Huge investments are needed to deploy these technologies and this could well set off a boom that draws much of its ballast from innovations to drive high global economic growth.

Gas price takes a toll on refining margins

Rituraj Baruah

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NEW DELHI

The rise in prices of liquefied natural gas and a global supply crunch has impacted the gross refining margins (GRM) of oil marketing companies, said people in the know of the developments.

Two officials aware of the developments said this has prompted OMCs, as the three state-run companies are called, to move to alternatives like naphtha and diesel in their crude refinery processes instead LNG.

But refining margins have been impacted despite the shift because the alternatives too are priced high under long-term agreements.

"We have had to shift from gas to other alternatives like diesel, naphtha and even grid power. This has hit our GRMs," said an official with one of the OMCs.

Another official said several refineries have more or less stopped using gas in the refining process.

Gas plays a significant role in the oil refining process, in all three stages—separation, conversion and treating of oil. Refining margin refers to the



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difference between the price of the refined product and crude.

In the last financial year (FY22), Indian Oil Corporation reported an average GRM of \$11.25 per barrel of crude oil, Bharat Petroleum Corporation Ltd (BPCL) \$9.09 per barrel and Hindustan Petroleum Corporation (HPCL) \$7.19.

The impact on GRM due to high gas prices and low supplies comes at a time when the three public sector are already reeling under heavy losses due to

high global crude prices.

Queries sent to IOCL, BPCL, HPCL and the ministry of petroleum and natural gas remained unanswered.

"Given the check on domestic sales prices, primarily of high speed diesel, the integrated refinery and marketing companies are understandably suffering under-recovery. Refin-

ing fuel costs have gone up in recent times due to global LNG prices tightening. That further adds to the woes. The situation

In FY22, IOC reported an average GRM of \$11.25 per barrel of crude oil, BPCL \$9.09 per barrel & HPCL \$7.19

may not ease any soon," said Deepak Mahurkar, partner and leader, oil and gas, PwC India.

Prashant Vashisht, vice president, ICRA said: "The cost of shift to alternatives may vary. While a shift to naphtha may be cheaper, a shift to diesel would be expensive and impact the GRMs. Several refineries have already stopped using gas with the surge in prices."

A recent report by S&P Global Commodity Insights said that many Indian refineries have now planned their maintenance in the second half of CY2022 and the run-rate of Indian refineries in the second half is likely to be about 10% lower than the first six months of the year. India's average run-rate for all categories of refineries fell to 96% in August from 100% in July, according to the petroleum ministry.

This week, the union cabinet approved a one-time payment of ₹22,000 crore for OMCs to compensate for their losses in selling cooking gas below cost.

The supply crunch comes when the US has proposed a price cap on gas supplied from Russia.

As a result, LNG suppliers now prefer to sell in the spot market than under long-term contracts.

Inflation may Hit 15% in April without Further Energy Aid



UK inflation could soar to 15% or more early next year unless the government sets out further measures to protect households from a jump in energy bills, economists said. Chancellor of the Exchequer Jeremy Hunt's decision this week to subsidize household fuel bills only until April will expose consumers and businesses to the full force of rising natural gas and electricity prices. **Bloomberg**

LOW ON GAS

LNG imports in Q2 the lowest since FY18



New Delhi: India's import of liquified natural gas (LNG) in Q2, at 7,305 mscm, was the lowest since FY18, as record high prices and shrinking global spot supplies impacted inbound shipments. **p4**

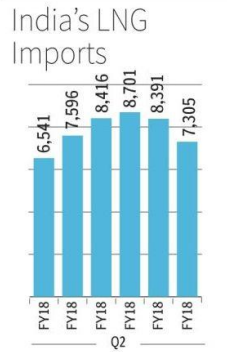
LNG imports in July-September, the lowest since FY18

Rishi Ranjan Kala
New Delhi

India's import of liquefied natural gas (LNG) in the July-September quarter was the lowest since FY18, as record high prices and shrinking global spot supplies impacted inbound shipments.

Even a quarter-wise comparison reveals that LNG imports during Q2 FY23 were the second-lowest in the last two years. Similarly, a month-wise analysis shows inbound shipments during September 2022 being the lowest in the last seven months.

According to data published by the Petroleum Planning and analysis Cell (PPAC), LNG imports stood at 7,305 million standard Cubic Meters (MSCM) during Q2 FY23. For



Source: PPAC
July-September Quarter LNG Imports
(Million Standard Cubic Meters - MSCM)

September, it was 2,365 MSCM. Imports during the July-September period were the lowest since the same period in FY18, when inbound shipments of LNG had hit 6,541 MSCM.



Similarly, a quarter-wise import assessment of LNG was the second-lowest since Q1 FY21, when imports stood at 7,279 MSCM. The lowest shipments during the review period was in

Q4 FY22 (at 6,745 MSCM). On a month-on-month basis, LNG imports in September were slightly lower compared to August 2022 (2,369 MSCM). Inbound shipments of gas in September was the lowest since February this year (2,024 MSCM).

HIGH PRICES

Trade sources said that spot purchases have been impacted since July this year, as European gas companies stocked up the key commodity for the winter months with Russian gas supply drying up due to geopolitical tensions. Besides, high prices for both imported LNG and domestic gas squeezed demand in the more price-sensitive sectors of the economy.

LNG is mainly used by fertiliser manufacturers and city gas distribution companies. Ac-

ording to a September 7 report by ICICI Securities, spot LNG prices in Asia touched a record high of \$70 per mBtu last week, a remarkable three-fold increase in three months, with a price of \$23.5 per mBtu as of June 10, 2022. Crisil, in an October 4 report, said that over the past 12 months, the average price of LNG contracts, benchmarked against crude oil prices, rose around 45 per cent to \$14.5-15.0 per mBtu, while spot LNG prices surged by around 150 per cent to \$38-40 per mBtu.

India's natural gas consumption in September stood at 5,157 MSCM, down 0.8 per cent m-o-m and 9 per cent y-o-y. The International Energy Agency (IEA), too, has projected India's natural gas consumption to decline 1.5 per cent y-o-y in 2022, as high prices have been adversely impacting demand.

Russia's Gazprombank Opens Special Re a/c with UCO Bank

Move likely to help raise imports of cheaper oil from Russia

Saikat Das & Atmadip Ray

Mumbai | Kolkata: Russia's Gazprombank opened a special rupee account with state-owned UCO Bank, paving the way for bilateral trades between Moscow and New Delhi, two people familiar with the matter told ET. The move would help increase imports of cheaper oil from Russia.

Earlier, the Reserve Bank of India (RBI) came out with a bespoke special rupee account for bilateral trades between rupee and any other currencies besides the US dollar. Gazprombank is only facing sectoral sanctions, but is not under the Specially Designated Nationals, or SDN, sanctions. UCO Bank and Gazprombank did not comment on the matter immediately.

Fostering Ties

The RBI, on July 11, allowed invoicing and payments for international trade in rupees

Gazprombank is only facing sectoral sanctions, but is not under the Specially Designated Nationals sanctions

The RBI, on July 11, allowed invoicing and payments for international trade in rupees, potentially facilitating greater bilateral business with Russia that is facing a wide range of Western sanctions and is virtually cut off from standard cross-border payment platforms.

The move paved the way for settle-

ment of payments in rupees for trades between Indian and Russia by giving greater flexibility in the operation of vostro accounts that Russian banks open with Indian banks for the purpose. A vostro account is one a foreign bank opens with an Indian bank in domestic currency i.e. rupees.

A 'special' tag to the rupee vostro account permits usage of surplus balance in Indian government securities. Experts in the field believe that UCO, which has little exposure to the US market, is the suitable candidate for bilateral trade payments between India and Russia as it won't affect its business due to US sanction on the Russian bank. "Large banks with international operations should avoid this business bet as it may pose risks of economic sanctions," said a banker.

Earlier, UCO was also the primary payment settlement bank for India-Iran trade ties when Iran was under US sanctions. The special payment mechanism to import crude from Iran had provided the state-owned lender a good chunk of interest-free floating fund, which helped it reduce its cost of funds.

RENEWABLE ENERGY GRID FROM GULF TO SOUTH ASIA

Saudi, India Seek to Energise Ties with Undersea Cables

Visiting Saudi energy min Prince Abdulaziz bin Salman to discuss project ahead of MBS trip to India in Nov

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Mumbai: The Gujarat coast could soon link up to the Middle East with deep sea cables, creating a renewable energy grid as India and Saudi Arabia explore a cross-country project borne on the tide of a new era of energy diplomacy, said people with knowledge of the matter.

This will be part of the discussion agenda when Saudi energy minister Prince Abdulaziz bin Salman visits New Delhi on a day-long visit on Friday to prepare the ground for Saudi Prime Minister and Crown Prince Mohammed bin Salman's trip to India next month.

Taking the conversation beyond oil exports, sources in the know said both sides are likely to initiate discussions on an undersea cable for an electricity grid involving South Asia and



Bridging Gulf

Distance between Gujarat coast (Mundra Port) to the city of Fujairah is **1,600 km**

| | |
|-----------------------------------|-------------------------------------|
| Alternative route via Oman | Deepest point in Arabian Sea |
| 1,200 km | 3.5 km |

Oil ministry carried feasibility study 3 years ago

Saudi Crown Prince MBS, PM Modi keen to take energy project forward

UAE may join project, estimated at **\$15-18 b**

the Gulf countries. The two are exploring the commercial viability of such a project.

Abu Dhabi may Also Join >> 14

Abu Dhabi may Also Join

►► From Page 1

If India agrees, the Abu Dhabi government could also join the ambitious project, the capital costs of which may be anywhere between \$15 billion and \$18 billion, as per industry estimates. However, these numbers are not final, cautioned the people cited above.

The Saudi ambassador to India has already extended invitations to leading conglomerates such as the Tata Group, Reliance Industries Ltd, JSW and Adani among others for their views. India will be the first stop for the crown prince on a trip that takes him to Indonesia, South Korea and Japan.

The distance between the Gujarat coast (Mundra Port) to the emirate of Fujairah

across the Arabian Sea is 1,600 km. Alternatively, the cable could also go via Oman (1,200 km), with the deepest point being 3.5 km. According to people with knowledge of the matter, petroleum and natural gas officials conducted a feasibility study three years ago, but only now is the project moving, with Prime Minister Narendra Modi pushing the International Solar Alliance.

"The plan is to have bi-directional flow of power in 15-minute blocks," said the CEO of a power transmission company on condition of anonymity. "Interconnections will solve the intermittency issue associated with wind or solar energy."

According to industry experts, a 3GW undersea project would involve capital expenditure of \$5 billion, which includes the cost of cables (copper or aluminium), installation ships and terminals at two ends, but anything below 10 GW will be sub-scale.

The external affairs ministry, Tata, RIL, JSW and Adani

FIRST STOP

India will be the first stop for the crown prince on a trip that takes him to Indonesia, South Korea and Japan

didn't respond to queries.

"India and Saudi are similarly placed—young population and among the fastest growing economies," said Anshuman Mishra, member, Future Investment Initiative of the Saudi Public Investment Fund (PIF). "A handshake between the booming Gulf and vibrant India is going to help bring Prime Minister Modi and Crown Prince of Saudi into the global centre stage. While the kingdom needs aluminium, steel, construction materials, India is hungry for cheap oil and in future cheaper electricity."

ENERGY DIPLOMACY

Several countries are connecting continents via electric cables for power. As oil and gas prices surge, Europe is facing an energy crisis. Russia was the largest supplier of oil and gas to the bloc in 2021, providing around 40% of total energy needs. But after the invasion of Ukraine and the imposition of sanctions, energy prices have surged, leaving some nations unsure of supplies this winter.

The UK and Norway swap hydro and offshore wind energy across an 800 km undersea cable. Greece is embarking on one of Europe's most ambitious energy projects by linking up its electricity grid with that of Egypt. An underwater cable will carry 3,000 MW of electricity—enough to power up to 450,000 households—and will run from northern Egypt directly to Attica in Greece. The project is being undertaken by the CopeIouzos Group.

The GREGY interconnection, set to cost 3.5 billion euros, has been deemed a Project of Common Interest (PCI) by the European Union, signifying it to be a key priority for interconnecting the European Union's energy system infrastructure. It will carry clean electricity produced in Egypt and other African countries through underwater cables via wind and solar parks. The total length of the project is 1,373km. Egypt has already completed interconnection projects with Libya, Sudan and Saudi Arabia and aspires to become a major energy hub for Southeastern Europe. The project is expected to be completed in seven-eight years.

Likewise, four high-voltage, direct current (HVDC) electricity cables stretching 3,800 km from Britain's southern coast, beneath the sea, aim to connect to a patch of desert at Guelmim Oued Noun in central Morocco.

The oil-rich Gulf countries, including Saudi Arabia, also are looking to diversify energy requirements to fire their power plants. The kingdom's electricity is generated from natural gas (52%), oil (40%) and steam (8%). But a looming energy shortage requires Saudi Arabia to increase its 56 GW capacity to 120 GW by 2032.

Last year, Singapore and Australia inked a similar agreement for an undersea cable from a planned major solar farm project in the Northern Territory supplying the island-nation with sustainable electricity by 2027. The project won major project status this week from the Australian federal government, which will help smooth the approval process for the \$22 billion Australian-Asean Power Link using high voltage direct current (HVDC) technology.

"We are already exporting and importing power from Nepal, Bhutan so all the legal and regulatory framework are in place," said a Dubai-based energy consultant familiar with the plans. "Very soon connecting Greece with Bangladesh and then Singapore and Australia will not be a distant dream. The six-seven hour time difference is really suitable for the arbitrage to kick in."

Weed is coming to Circle K gas stations in US next yr

Weed is coming to US gas stations. Green Thumb Industries Inc., one of the largest US cannabis producers, signed a deal with Circle K, the global convenience-store chain, to sell licensed marijuana at its Florida gasoline retailers. The partnership will begin next year with 10 of the company's 600 locations in the state, Green Thumb said. **BLOOMBERG**

Govt to revive Nanar oil refinery project

Faisal Malik

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MUMBAI: The Maharashtra government is keen on reviving the ₹3.5 lakh crore oil refinery project at Nanar in the Konkan region, which the Uddhav Thackeray-led Shiv Sena had opposed. The Shinde-Fadnavis government does not want the project to go out of the state, and is looking to set it up at Nanar itself. The issue was discussed in the cabinet on Thursday.

Officials present at the meeting revealed to Hindustan Times that deputy chief minister Devendra Fadnavis insisted that the state government set up the oil refinery project in the Konkan region, and as far as possible at Nanar.

After losing the ₹1.54 lakh crore Foxconn-Vedanta semiconductor project to Gujarat, the state government is firm about pushing for the oil refinery project. The refinery was proposed to be built with investment from Saudi Aramco, the state-owned company of the Kingdom of Saudi Arabia.

"This project is much bigger than the Vedanta-Foxconn project and thus it is in the interest of the government to make every attempt to bring it to Maharashtra," said a senior official from the state industries department.

The refinery project had earlier been scrapped by chief min-

ister Devendra Fadnavis following opposition from the Uddhav Thackeray-led Shiv Sena, the then ally of the Bharatiya Janata Party. The two parties had sealed an alliance deal for the upcoming Lok Sabha polls in March 2019, and moving the project away from Nanar was one of the Shiv Sena's pre-conditions to forging the alliance. Konkan locals had been strongly opposing the refinery project, and the Shiv Sena had

come out in their support in order to secure its traditional voter base in the coastal region. The Thackeray government then pushed for another site for the oil refinery project, 20 kilometres away from Nanar.

The cabinet sub-committee also approved the setting up of a ₹20,000-crore paper production project at Raigad. It has approved a 300-acre land for the project, which the company plans to set up in two phases.

How is the energy crisis in Europe shaping up?

Why is the Netherlands government caught in a dilemma with regard to the shuttering of a large gas field in the region of Groningen, which has been plagued by earthquakes? Why should all this concern India?

K. Bharat Kumar

The story so far:

As winter approaches, Europe faces an energy problem. The numerous leaks – apparently caused by explosions – to the Nord Stream 1, which is an energy pipeline connecting Russia to Germany, has driven supplies to a halt. Amid anxieties about building up energy reserves, the gas field in Groningen in the Netherlands has once again come under the spotlight.

Why is this gas field relevant?

The region of Groningen in the Netherlands has a gas field that began operations in 1963. During the 1980s, the area saw numerous earthquakes – minor enough to avoid large damage but big enough for local buildings to develop cracks. Following these quakes, the Dutch

government had earlier said that it would shutter the field in response to local protests. The closure date was also advanced to 2022 from 2030.

However, due to recent geopolitical tensions, the Dutch government wants to keep options open. In a statement, the Dutch government had in June said that “the Cabinet would like to be in a position to close down the Groningen gas field in 2023, as this is the only way to restore safety in Groningen and to reassure residents in the long run. However, the uncertain geopolitical developments have prompted the mining minister to refrain from permanently closing down any wells this year.” A *Bloomberg* report earlier this month said that if allowed, the additional supply from the field could go up to a level that would make up for what Germany imported last year from Russia. It said that the field still had potential for

about 450 billion cubic metres (bcm) of gas to be extracted.

Can oil or gas exploration cause earthquakes?

The Hindu spoke to professors specialising in both geophysics and geology at IIT-ISM (Indian School of Mines). Prof. Rajeev Upadhyay, Prof. Saurabh Datta Gupta, and Prof. Mohit Agarwal agree that man-made or induced earthquakes can be pretty damaging.

Examples of human activity that could lead to ‘induced seismicity’ are damming of rivers to create reservoirs, oil or gas extraction, and mining. Fluid extraction from hydrocarbon reservoirs (rocks that hold hydrocarbons which are oil and gas) causes an increase in net effective stresses, which, when supported by the geomechanics of the rock, may lead to development of new faults and fractures.

In the case of Groningen, the ground subsiding has been caused by extraction alone over several years. Such extraction causes rocks to contract – as the pores get to hold less and less hydrocarbons over time.

Should India be concerned about gas in the Netherlands?

India’s domestic gas price is determined from the average of four global indices viz U.S.’s Henry Hub, the U.K.’s National Balancing point, Canada’s Alberta and Russian gas. Compared with pre-pandemic times, the average domestic price of gas has more than doubled from \$5.08/MMBTU to \$11.62 and CARE Edge Director of Ratings, Sudhir Kumar, estimates that this is bound to rise again when the six-monthly reset takes place for April-September 2023. India consumed about 63.9 bcm in FY22, about 3.1 bcm more than in the previous year. Imports alone accounted for close to 50% of consumption, at about 30 bcm. Global production is estimated to decline from 4,109 bcm in calendar 2021 to 4,089 bcm in 2022. The situation would become challenging for the government unless the formula for determining domestic gas price is reviewed, he says. Till then, the government has to bear the higher subsidy burden on fertilizer – in the manufacture of which natural gas is used – as well as for the LPG sector.

THE GIST

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India-Russia trade soars to record high as imports of oil and fertiliser drive surge

HARIKISHAN SHARMA
NEW DELHI, OCTOBER 20

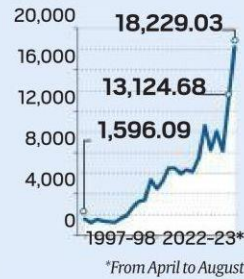
FUELLED BY a surge in import of oil and fertilisers, India's bilateral trade with Russia has soared to an all-time high of \$18,229.03 million in just five months (April-August) of this financial year (2022-23), according to the latest data available with the Department of Commerce.

In contrast, the total annual bilateral trade between the two countries stood at \$13,124.68

CONTINUED ON PAGE 6

INDIA'S TRADE WITH RUSSIA

Trade in \$ million



• India-Russia trade soars to record; imports of oil, fertiliser drive surge

million in 2021-22, and \$8,141.26 million in 2020-21. Pre-Covid, it was \$10,110.68 million in 2019-20, \$8,229.91 million in 2018-19, and \$10,686.85 million in 2017-18.

With the sharp spike in trade, Russia has now become India's seventh biggest trading partner – up from its 25th position last year. The US (\$57,632.37 million), China (\$50,792.83 million), UAE (\$36,820.33 million), Saudi Arabia (\$23,995 million), Iraq (\$18,822.27 million) and Indonesia (\$18,816.58 million) were the six countries which recorded higher volumes of

trade with India during the first five months of 2022-23.

Of the total \$18,229.03 million bilateral trade in April-August, India's imports from Russia accounted for \$17,236.29 million, while New Delhi's exports to Moscow were only worth \$992.73 million, leaving a negative trade balance of \$16,243.56 million.

In 2021-22, India's exports to Russia stood at \$3,254.68 million, while imports from Moscow were valued at \$9,869.99 million.

In the past, there have been only two occasions when bilateral

trade between the two countries crossed the \$10 billion mark – in 2017-18 (\$10,686.85 million) and 2019-20 (\$10,110.68 million).

An analysis of the data shows that Russia's share in India's total trade has increased to 3.54%, up from 1.27% in 2021-22. While Russia's share in India's total trade was 2.1% in 1997-98, it has hovered below 2% for the last 25 years.

The record level of bilateral trade between India and Russia is mainly due to a sudden jump in imports from Moscow, which began to surge earlier this year. There was an over 500% increase in three months – 561.1% in June,

577.63% in July and 642.68% in August – as compared to the same months of the previous year.

Petroleum oil and other fuel items (mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes) accounted for 84% of India's total imports from Russia in April-August, adding up to \$14,476.52 million as compared to \$1,593.58 million last year. Fertilisers were second, with imports from Russia surging by 666.24% to \$1,236.96 million in April-August, up from \$161.43 million during the same period last year.

RIL's Hazira unit expansion gets ministry nod

Press Trust of India

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HYDERABAD: The expert appraisal committee under the ministry of environment, forests and climate change has recommended environmental clearance for the ₹10,000 crore expansion and debottlenecking of Reliance Industries Ltd's Hazira manufacturing division (HMD) in Gujarat.

Debottlenecking is the process of getting more production out of existing plants and equipment by improving processes or revamping equipment.

"The EAC, after detailed deliberations, recommended the project for grant of environmental clearance, subject to compliance of terms and conditions as under....," the EAC said in the meeting held on 10 October.

The HMD complex of Mukesh Ambani's RIL was commissioned in 1991-92 to manufacture MonoEthylene Glycol, Vinyl Chloride Monomer (VCM), Poly Vinyl Chloride



The Hazira manufacturing division plans to expand the production capacities of various plants.

REUTERS

(PVC) and High Density Polyethylene (HDPE) along with utilities.

Subsequently in later years, the Naphtha cracker, Purified Terephthalic Acid and Polypropylene plants were set up.

The HMD is planning to expand its production capacities of various plants-Cracker

Plant, Ethylene (C2), Propylene (C3), C4 products (such as LPG, Butadiene, Butene 1, MTBE/Isobutylene, Butanediol, HIPB), among others.

"The estimated project cost is ₹10,000 crore. Capital cost of EMP (environmental management plan) would be ₹790 crores and recurring cost for EMP,

post-project, would be ₹47 crore per annum," the minutes said.

The industry proposes to allocate ₹1 crore towards extended EMP (Corporate Environment Responsibility) for development of greenbelt.

Total employment after expansion will be 750 persons as direct and indirect, it further said.

The company shall comply with all the environmental protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, and risk mitigation measures relating to the project shall be implemented, the EAC said in one of the conditions for the EC.

The panel also said the project proponent shall ensure 70% of the employment to the local people, as per the applicable law besides setting up a skill development centre/ provide skill development training to village people.

What are India's options in a multipolar West Asia?

The *cognoscenti* has interpreted the October 5 Organization of the Petroleum Exporting Countries+ (OPEC+) decision to cut its collective oil production by two million barrels per day (mbpd) as yet another sign of the fading Pax Americana in West Asia.

A rare strongly worded public exchange between Washington and Riyadh has followed may well imperil their seven-decade-old bilateral compact leading to a wider realignment. Although oil prices have remained stable, some American conspiracy theorists believe that the inflationary move was intended to help the Republicans win a majority in the US midterm elections and pave the way for Donald Trump's return.

This dramatic episode underlines the discernible trend towards regional multipolarity. The United States (US) national security strategy published last week also corroborates this shift by downgrading the region to fourth in the priority hierarchy. The document criticises the past "unrealistic faith in force and regime change" and seeks to "eschew grand designs" in favour of "more practical steps that can advance US interests and help regional partners." The document is deafeningly silent on oil and gas security, hitherto the *raison d'être* of Pax Americana in West Asia.

If Pax Americana is winding down in West Asia, who or what will replace it? The US ensured linearity, stability, and predictability in this strategically important, but potentially volatile region. Washington intends to remain *primus inter pares* for the foreseeable future and has fostered regional alliances through mechanisms such as the Abraham Accords and the India-Israel-United Arab Emirates (UAE)-US (I2U2). The Pentagon's recent indulgence of the Pakistani military establishment can also be seen against this backdrop. This incipient order is likely to be shaped by a combination of assertive regional players acting in concert with foreign interests in this emerging power vacuum. It is difficult to predict the new order, but the following two broad surmises can be offered.

First, regional players seem to lack a cohesive pattern. For instance, Saudi Arabia and the UAE are quite like-minded on many issues, but are locked in competition for Gulf supremacy. They have major regional policy differences. Though Israel is increasingly mainstreamed, it often provokes strong popu-

lar resistance in the region. While largely accepting Israel as an antidote to Iran, many Gulf Arab regimes worry about a blowback. Turkey has lately mended its fences after decade-long flirting with political Islam, but its regional acceptability is circumscribed by a struggling economy and a potentially messy presidential election next year. Iran is struggling under US economic sanctions but continues to pose a strategic threat, both directly and through regional proxies. Egypt, Syria and Iraq are preoccupied internally. On all important oil production issues, too, any drastic fall in demand due to a possible global recession in the coming months could unleash fierce competition between States.

Second, none of the foreign players offers any long-term and comprehensive succour to the region. For local players, their attractiveness to these new foreign players is not a comprehensive substitute for US dominance, but only as an adjunct or counterpoise.

Most of these foreign powers are motivated by their dependence on the Gulf for their energy requirements or investments. They lack the full complement of policy drivers. The European Union is preoccupied with the Ukraine conflict and imminent stagflation. It is desperate for an alternative to Russian oil and gas but has little strategic value to contribute.

Russia has its hands full with the Ukraine conflict and dealing with crippling western sanctions. It is likely to remain an outlier with scant capacity to anchor the volatile region. China's economic heft and pretence of being a strategic alternative seem to have dipped as it battles lockdowns induced by its zero-Covid policy and declining economic growth. Until China gets its mojo back, its role in the region will remain largely transactional.

Thus, West Asia waits for Godot while grappling with several known unknowns — unable to envision what disruptions are in store in the foreseeable future, how long this wait will be, and how it will evolve. It is in everyone's interest that the ongoing transition be orderly and gradual. Consequently, greater policy cohesion among various players is highly desirable. But given various imperponderables, it may not be possible to seed it.

The West Asian region is critical to India for hydrocarbons, remittances, investment and its market. But faced with such a chaotic transition there, what options do we have?

One, we need to reduce, to the extent possible, our dependence on crude and gas imports. Two, we need to go for long-term energy-for-security arrangements with suitable partners in the region. Three, on the whole, bilateral engagements are preferable to any nebulous multilateralism. Four, while engaging regional players, we should be well-prepared to anticipate their expectations and respond realistically. Above everything, both please-all mantras and overcommitments need to be avoided.

It is heartening to note that over the past few weeks, our bilateral high-level contacts with important regional players have intensified. Prime Minister Narendra Modi has met his counterparts from Iran and Turkey and Indian ministers have visited Saudi Arabia, the UAE, and Egypt. We need to deepen this trend and expand it to include other regional players such as Israel, Iraq, and Syria.



Mahesh Sachdev



While engaging all regional players in an increasingly volatile West Asia, India should anticipate their expectations and respond quickly SHUTTERSTOCK

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The views expressed are personal

Inauguration & Dedication to the Nation of Indian Oil's 2nd Generation Ethanol Plant at Panipat Refinery

Mumbai, Commissioned in October 1998, Panipat Refinery is IndianOil's 7th and the technically most advanced public sector refinery complex of India. Set up in the outskirts of the historic city of Panipat, The Refinery meets the demand of petroleum products not only in Haryana, but in the entire North-Western region, including Punjab, J&K, Himachal Pradesh, Chandigarh, Uttarakhand and parts of Rajasthan, Uttar Pradesh and Delhi. With a view to meet the growing demand of petroleum products, especially in the Northern region of India, the capacity of Panipat Refinery was expanded to 12 MMTPA in 2005 and again augmented to 15 MMTPA in December, 2010. The modern installation was further enhanced with the setting up of a world class petrochemicals complex. Further, to match the potential demand, a robust augmentation upto 25 MMTPA is already under way.

This project will benefit environment by stopping rice straw burning and help reduce green-house emission of ethanol blending into gasoline.

One of a kind, first in Asia, the 2G ethanol plant

at Panipat, based on state-of-the-art indigenous technology, will produce 3 Crore liters of Ethanol annually with rice straw - based lignocellulosic biomass as the feed, that will blend with petrol thereby offering to be a game-changer with respect to the present scenario. Technology: Based on "enfinity" technology the plant will utilize over 2 Lakh MT of rice straw annually as feedstock & secondary fuel (for boiler) to produce 3 Crore liters of Ethanol.

The Ethanol will be blended in petrol to meet the Govt. of India (Gol) target of 20% Ethanol blending in Motor Spirit (petrol) and other benefits. The plant consists of Bio mass preparation section, main process plant, enzymatic hydrolysis, co-fermentation, distillation, degasifying column, split analyzer column, rectifier cum exhaust column, residue handling section and evaporators.

To raise the non-fossil fuel-based energy capacity of the country to 500 GW by 2030. By 2030, 50% of the country's energy requirements would be met using renewable energy sources. The country will reduce the total projected carbon emission by one billion tones between now and the year 2030.

The carbon intensity of the economy would be reduced to less than 45% by 2030. Country would become carbon neutral and achieve net zero emissions by the year 2070.

2G Ethanol Plant
Capacity - 100 Kilo Litre per Day
Project Cost- 909 Crore
Ethanol Purity - 99.6%

Feed-Rice straw based lingo-Cellulosic

The 2G ethanol plant at Panipat, will produce 3 Crore liters of ethanol annually that will blend with gasoline thereby saving crude oil imports. The economy will also benefit by tax revenue and GST income on ethanol. The project will revive rural society by creating jobs and benefitting farmers by increasing their income. The production of 2G ethanol will save GHG emission, thereby protecting our environment from pollution of crop burning.

Environmental benefits

This project will benefit environment by stopping rice straw burning and help reduce green-house emission of ethanol blending into gasoline. It will save 3,00,000 MT of GHG emission. This is equivalent to replacing over 62,000 cars annually from roads of the

country.

• Additionally, burning of agricultural biomass residue, or Crop Residue Burning (CRB) has been identified as a major health hazard.

• The main causes of crop residue burning are twofold. Firstly, there is a very short window of time between harvesting of paddy and cultivation of wheat, at the end of the Kharif season. Paddy, or rice, is a water-intensive crop. Secondly, the large units of harvesters leave 6-10 cm of paddy stalk on the field.

The removal of the paddy stalk that remains on the field is a labor-intensive process. With insufficient labour and the time window for preparing the field for wheat cultivation being rarely used agricultural implements, or burn the residue right on the field. limited, the options that the farmer has is to either invest in expensive and Of the two, the latter is both cheaper and requires less effort.