FIPI

Federation of Indian Petroleum Industry

MAY 2023

POLICY & ECONOMIC REPORT

OIL & GAS MARKET

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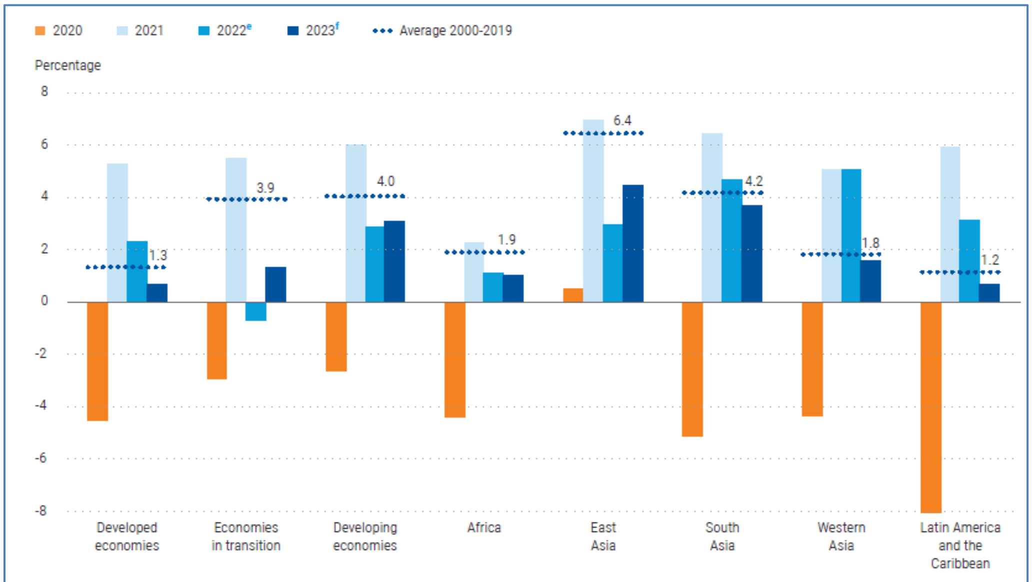
Executive Summary

According to United Nations, global growth is projected to slow from 3.1 % in 2022 to 2.3 % in 2023. The deceleration in global growth is attributed to high inflation both developed and developing countries, worsening impacts of climate change and the adverse impact of Russia-Ukraine war crisis. There have been upward revisions seen in major developed countries and China. In the United States, consumer spending and non-residential investment have proven more resilient than expected, prompting upward revision of the growth forecast to 1.1 % in 2023 (up from 0.4 % forecast in January).

In Europe, lower gas prices and robust consumer spending, especially on services, have prevented the sharp slowdown that had been forecast in January. The European Union's economy is now projected to grow by 0.9 % in 2023 (up from 0.2 % forecast in January). In case of China, after lifting COVID-19-related restrictions in December 2022, China's GDP expanded faster than expected in the first quarter of 2023. Annual growth this year is now forecast at 5.3 % (up from 4.8 % forecast in January). GDP per capita is projected to grow only marginally in Africa and Latin America and the Caribbean in 2023, reinforcing a long-term trend of weak economic performance.

Figure- Growth of GDP per capita by region

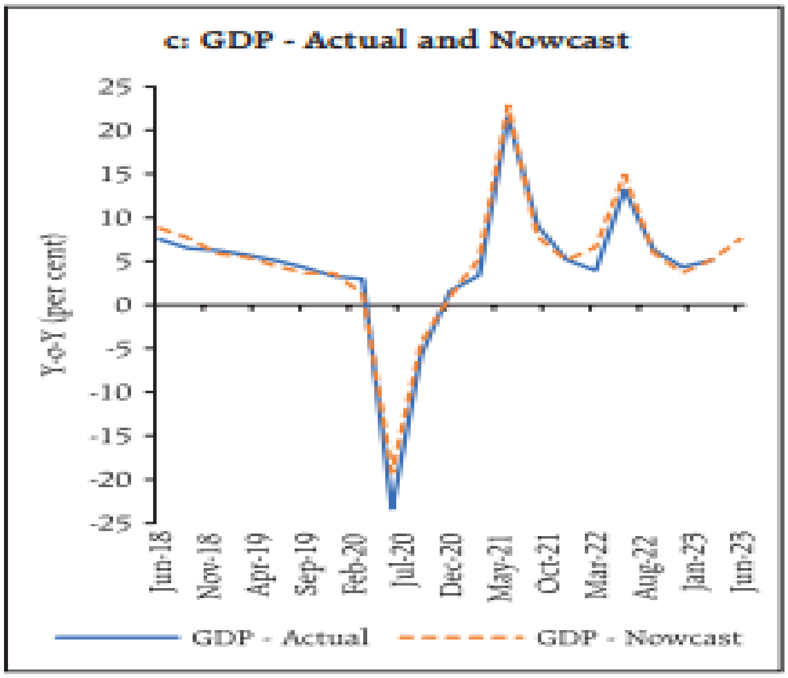


Source: UN DESA, based on estimates and forecasts produced with the World Economic Forecasting Model.
Note: e = estimates, f = forecasts. Data for Libya is excluded.

In case of India, according to RBI's May Bulletin, domestic economic conditions have sustained the quickening of momentum seen in the last quarter of 2022-23. India's growth is likely to be driven primarily by private consumption, supported by reviving rural demand, and renewed buoyancy in manufacturing in the April-June 2023 quarter. The lead indicators affecting the growth of Indian economy are as follows: -

According to NSO, Real GDP in the year 2022-23 is estimated to attain a level of ₹160.06 lakh crore, as against the First Revised Estimates of GDP for the year 2021-22 of ₹149.26 lakh crore. The growth in real GDP during 2022-23 is estimated at 7.2 % as compared to 9.1 % in 2021-22. Nominal GDP the year 2022-23 is estimated to attain a level of ₹272.41 lakh crore, as against ₹234.71 lakh crore in 2021-22, showing a growth rate of 16.1 %. For the 4th quarter of 2022-23, India's economy grew 6.1 %, pushing up the annual growth rate to 7.2 % for FY 2023.

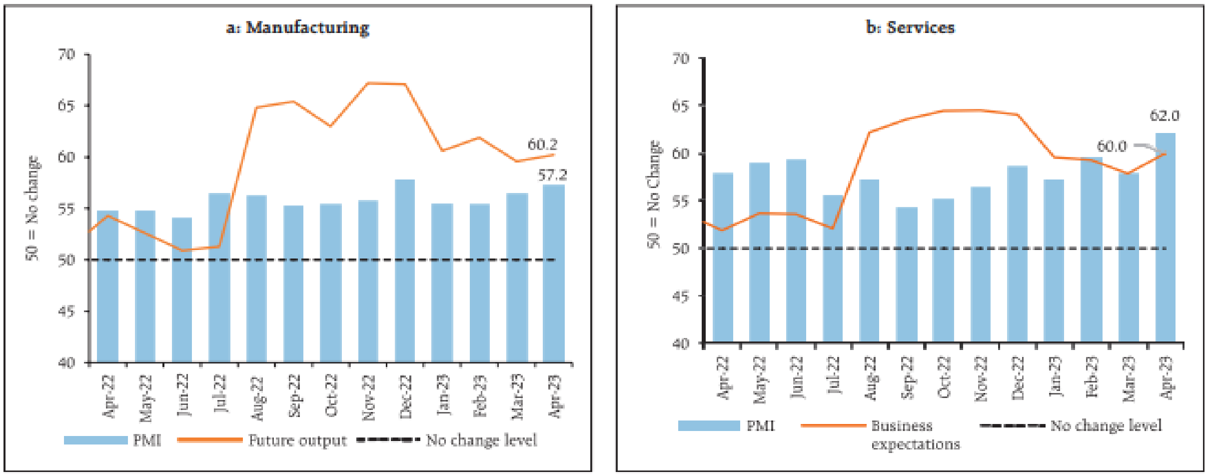
Figure- GDP forecast



Source- NSO, RBI estimates

Consumer Price Index (CPI), slipped to an 18-month low of 4.70% in April 2023 from 5.66% in March 2023 largely due to moderation in food prices, which accounts for nearly half of the overall consumer price basket. CPI food inflation (y-o-y) moderated sharply to 4.2 % in April 2023 from 5.1 % in March 2023. Inflation in the fuel and light group declined to 5.5 % in April 2023 from 8.8 % in March 2023. For FY 2024, RBI has projected inflation at 5.2%. In a monetary policy meeting held on April 6, the RBI had decided to pause its consecutive rate hikes and keep the benchmark repo rate at 6.50%. The Monetary policy Committee (MPC) decided to remain focused on withdrawal of accommodation to ensure inflation progressively aligns with the target while supporting growth.

The headline PMI for manufacturing reached a four-month high of 57.2 in April 2023 from 56.4 in March 2023, with a broad-based expansion in all sub-indices. Output in the service sector expanded at the fastest rate in nearly 13 years at 62.0 in April 2023 (highest since July 2010), led by a pick-up in new business growth and favorable market conditions.



Source- S&P Global

The CMIE data for April, 2023 suggest that the India's unemployment rate increased in April 2023 to 8.11 % from 7.8 % in March 2023. While the with urban unemployment increased to 9.81% from 8.51% in the same period, rural unemployment, however, fell marginally to 7.34% in April from 7.47% in March. Despite the rise in unemployment, India saw its labor force participation surging by 25.5 million to 467.6 million in April, boosting the overall participation rate to 41.98%

According to Reserve Bank of India, India's foreign exchange reserves saw a rise of $7.196 billion to $595.98 billion as on May 5, 2023. India's forex reserves reached a 10-month-high of $588.8 billion in the week through April 28, recovering from a drop to $524.5 billion last October, when the rupee hit a record low against the U.S. dollar.

Oil prices retreated during April and beginning May as concerns over the condition of the global economy and oil demand prospects depressed market sentiment. North Sea Dated plunged by nearly $16/bbl in just two weeks, reversing gains that followed the surprise announcement by some OPEC+ countries to cut output from May. Prices were pressured lower by muted industrial activity and higher interest rates, which, combined have led to recessionary scenarios gaining traction and worries of a downward shift in oil demand growth.

OPEC+ countries will adhere to voluntary production cuts, recent disruptions to crude oil exports from Iraq and a force majeure limiting crude oil exports from Nigeria have also reduced the near-term OPEC liquid fuels production forecast. EIA expects that these supply constraints will put upward pressure on crude oil prices.

Natural gas spot prices at the U.S. Henry Hub benchmark averaged $2.16 per million British thermal units (MMBtu) in April 2023 as compared to $2.31 per million British thermal units (MMBtu) in March 2023. Natural gas prices started to decline due to mild temperatures in much of the Lower 48 states that reduced demand for natural gas for heating and resulted in less-than-average natural gas withdrawals from storage.

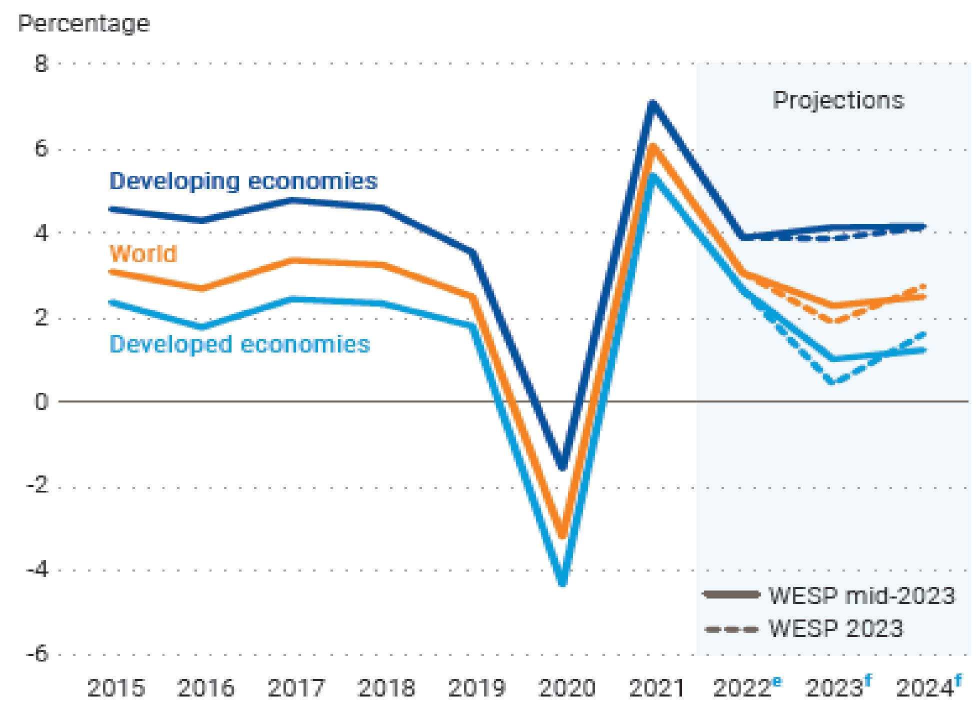
Economy in Focus

1. **A snapshot of the global economy**

Global economic growth

- According to United Nations, global growth is projected to slow from 3.1 % in 2022 to 2.3 % in 2023. The deceleration in global growth is attributed to worsening impacts of climate change and the adverse impact of Russia-Ukraine war crisis.

Figure- Growth of economic output in world, developed and developing countries



Source: UN DESA, based on estimates and forecasts produced with the World Economic Forecasting Model.
Note: e = estimates, f = forecasts.

- Further, global financial markets have remained largely resilient despite ongoing banking sector turmoil in the United States and Europe. In March 2023, the collapse of the Silicon Valley Bank and Signature Bank rattled financial markets worldwide. Despite the market turmoil, the Federal Reserve and other developed countries' central banks continued to raise policy rates as core inflation has remained high and more persistent than expected.

- There have been upward revisions in economic growth seen in major developed countries and China. In the United States, consumer spending and non-residential investment have proven more resilient thereby, prompting upward revision of the growth forecast to 1.1 % in 2023 (up from 0.4 % forecast in January).

- In Europe, lower gas prices and robust consumer spending, especially on services, have prevented the sharp slowdown that had been forecast in January 2023. The European Union's economy is now projected to grow by 0.9 % in 2023 (up from 0.2 % forecast in January).

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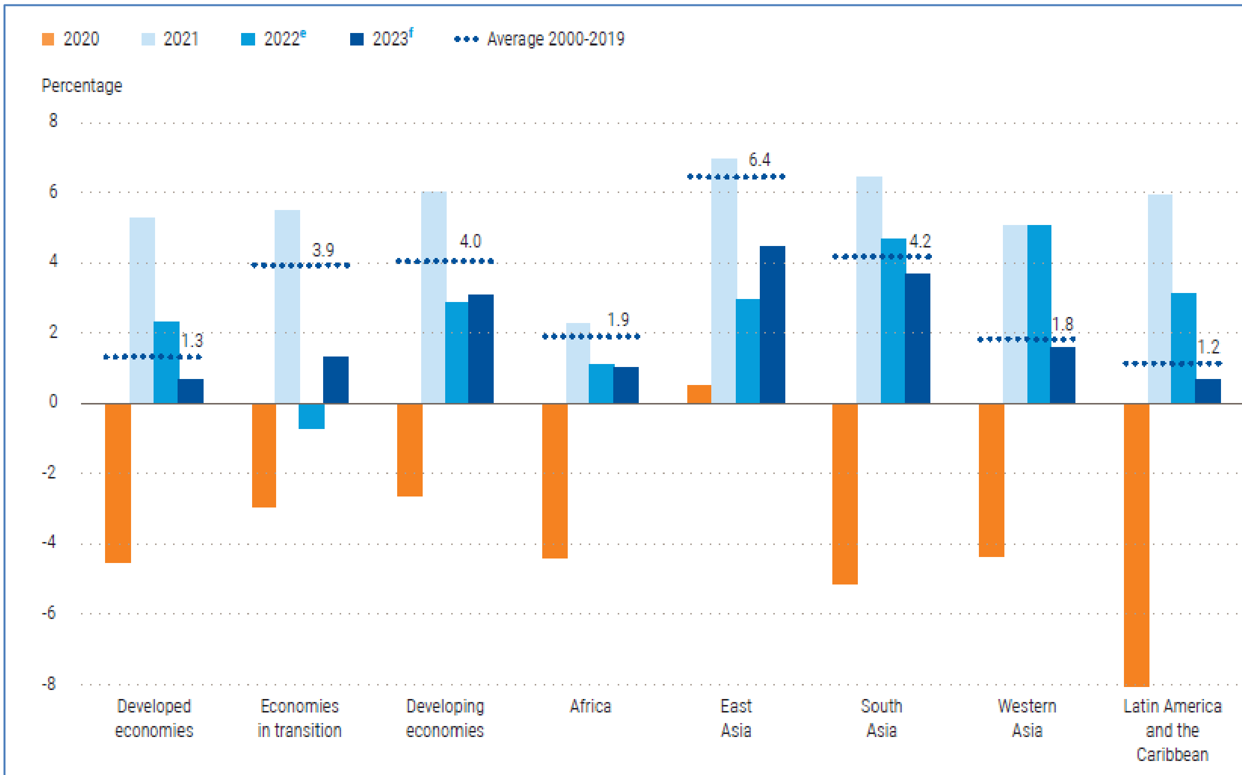
Figure- Growth of GDP per capita by region



Source: UN DESA, based on estimates and forecasts produced with the World Economic Forecasting Model.
Note: e = estimates, f = forecasts. Data for Libya is excluded.

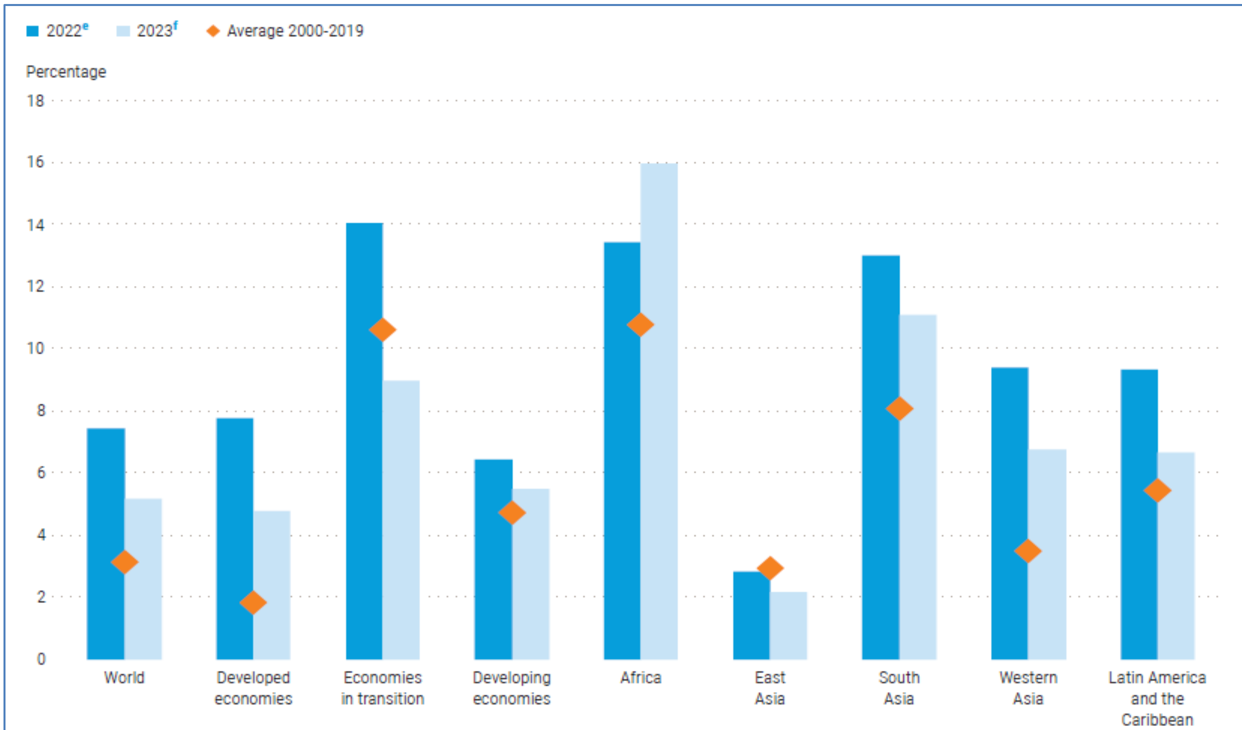
Global Inflation

- Global inflation is projected to decline from 7.5 % in 2022 to 5.2 % in 2023, mainly due to lower food and energy prices and softening global demand.

- Global food prices have been falling since mid-2022 owing to several factors, including the resumption of exports from Ukrainian ports under the Black Sea Grain Initiative. The FAO Food Price Index declined by 20 % year-on-year in March 2023 to 126.9, the lowest value since July 2021.

- Although the unexpected OPEC+ production cut in April coupled with the European Union's ban on Russian crude exerted temporary upward pressures on prices, oil prices continued to drop amidst concerns of global recession. Between January and early May 2023, Brent crude oil prices fell 16 % to about $75 per barrel, the lowest level since December 2021.

Figure- Annual inflation by region



Source: UN DESA, based on estimates and forecasts produced with the World Economic Forecasting Model.
Note: e = estimates, f = forecasts. Regional averages are GDP-weighted. Data for Argentina, Sudan, Türkiye and the Bolivarian Republic of Venezuela are excluded.

- In developed countries, headline inflation is expected to decline gradually from 7.8 % in 2022 to 4.8 % in 2023. In the United States, headline inflation has been falling to 5.0 % in March 2023, the lowest rate since May 2021.

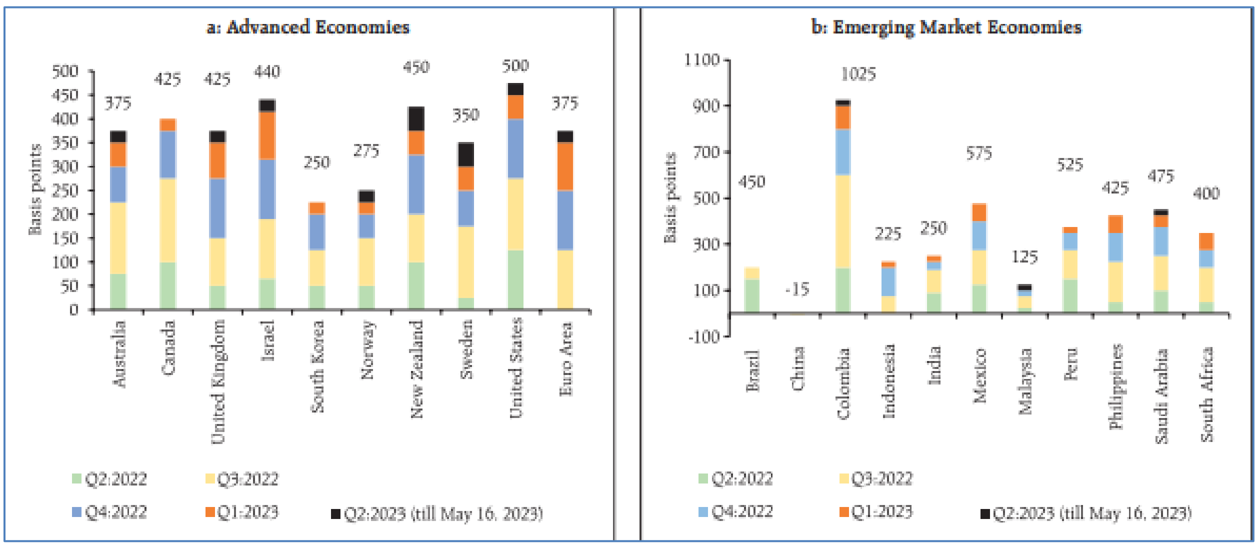
- In the European Union, inflation declined to 8.3 % in March, ranging from about 3 % in Luxembourg and Spain to 25.6 % in Hungary. While headline inflation rates have been falling, core inflation in the United States and Europe remains high, mainly driven by rising service prices (e.g., housing, insurance, transport) and robust wage growth.

Central Bank stance on global inflation

Central banks in the advanced economies and emerging economies have either reduced the magnitude of hikes or paused in their rate hike cycles.

- The US Federal reserve increased its policy rate by 25 basis points on May 3, 2023.
- The Bank of England and the Reserve Bank of Australia also raised their policy rates by 25 bps each in May.

Figure- Monetary policy actions



Source- RBI

- Most EME central banks have also pivoted to relatively less aggressive monetary policy actions. In April and May 2023, the Central Bank of Argentina raised its policy rates by 1900 bps in three steps of 300 bps, 1000 bps and 600 bps, while the Central Bank of Colombia implemented a 25-bps increase.
- In May 2023, the Malaysia also raised its policy rate by 25 basis points for the first time in 2023.

Global Trade

- According to United Nations, the volume of global trade in goods and services is expected to grow by 2.3 % in 2023, which reflects the upward revision to GDP growth projections. Furthermore, China's reopening is expected to increase domestic demand and potentially boost global trade with increased imports of goods and services.

- Trade in services experienced faster growth than trade in goods, supported by further recovery in travel and tourism sectors. International tourism is set to consolidate its recovery in 2023, backed by pent-up demand, particularly from Asia and the Pacific. United Nations World Tourism Organization (UNWTO) estimates that international tourism arrivals could reach 80 to 95 % of pre-pandemic levels in 2023.

2. **Global carbon pricing schemes raised record USD 95 bn in 2022 - World Bank**

- According to World Bank's Annual Report, State and Trends of Carbon Pricing 2023, countries raised a record $95 billion last year by charging firms for emitting carbon dioxide under Carbon Taxes and Emissions Trading Systems (ETS). The revenues collected from carbon taxes and ETS in 2021 were about US 84$ billion.

- There are currently 73 global carbon pricing instruments in operation, compared with 68 when the World Bank issued its 2022 report last May, covering around 23% of global greenhouse gas emissions.

- According to the World Bank report, as of April 1, 2023 less than 5% of global greenhouse gas emissions are covered by a direct carbon price at or above the range recommended by 2030.

- In 2017, a report by the High-Level Commission on Carbon Prices indicated carbon prices need to be in the $50-100 per ton range by 2030 to keep a rise in global temperatures below 2 degrees Celsius, the upper end of the limit agreed upon in the 2015 Paris agreement. However, after adjusting for inflation, the World Bank states that those prices would now need to be in a $61-122 ton range.

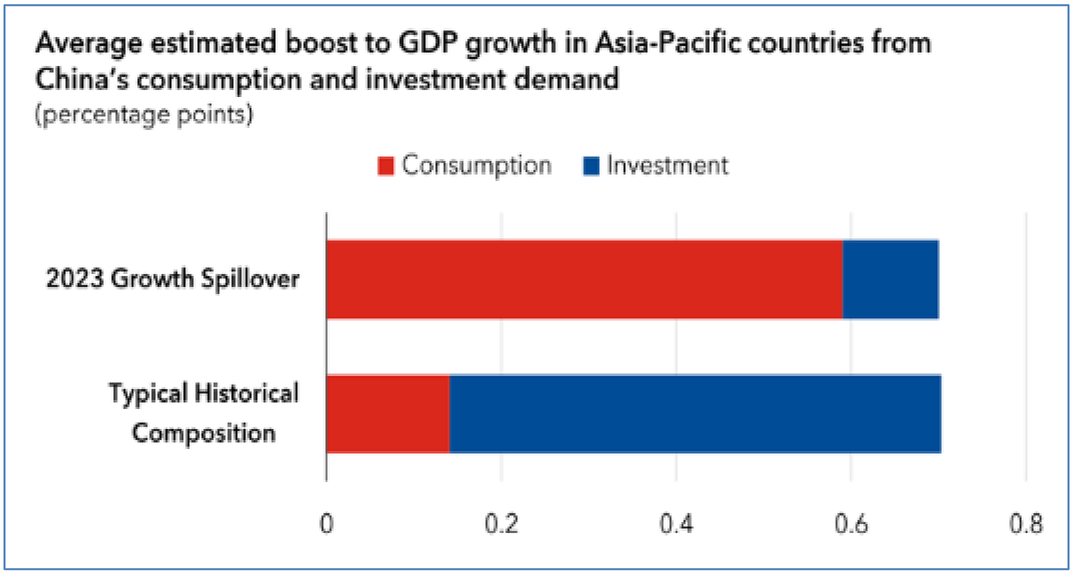
3. **Asia Likely to See Dynamic Economic Growth, but with Policy Challenges- IMF**

- While the global growth has showed signs of deceleration amid rising interest rates, higher inflation levels and banking strains in the United States and Europe, Asia's domestic demand has so far remained strong despite monetary tightening.

- According to IMF, the region will contribute about 70 % of global growth this year as its expansion accelerates to 4.6 % from 3.8 % last year.

- The re-opening of Chinese economy will result in spurt rise in the demand for consumption along with an increase in demand for investment goods in China.

Figure- Average estimated boost to GDP growth

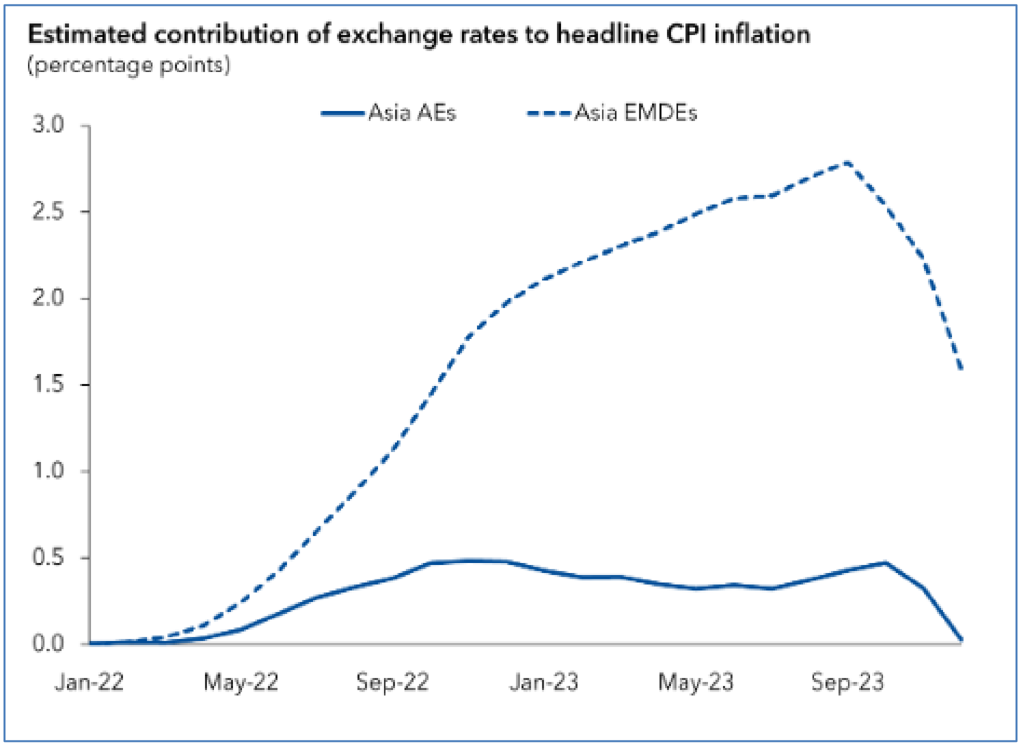


Source- IMF

Despite the above advantages, many risks exist to hover around Asian economy's growth patterns.

Public debt poses a big challenge and intensification of the recent global financial tremors could further spark other debt related risks. Secondly, persistent inflation remains a challenge. Global commodity prices have moderated after surging last year and supply chain pressures have eased, but inflation remains above central banks' targets. Core inflation, which excludes food and energy, has also proven sticky. Thirdly, the effect of currency depreciation against the US dollar last year is still passing through to prices. The currency depreciation is fueling inflation in Emerging Asia, and therefore the central banks may need to keep interest rates higher for longer.

Figure- Exchange -rate effects



Source- IMF

Further, the path of global and regional financial conditions poses a significant risk on Asian economy as the recent turbulence in some US and European banks can pose huge financial distress among several Asian economies. The banks in Asia particularly in advanced economies could suffer losses from increases in wholesale funding costs and sudden declines in the market values of assets. Lenders in some emerging economies could face liquidity stresses following sudden deposit withdrawals or retrenchment in external funding lines.

In addition, corporate debt is concentrated in firms at risk of insolvency and in a few sectors, such as property. Real estate prices in Asia are still historically high even after recent cooling; further declines could pressure banks' balance sheets, especially those exposed to mortgage lending and real estate developers. Thus, fiscal consolidation amid high debt and rising interest rates is big challenge. Therefore, fiscal consolidation may need to be more aggressive to ensure sustainability over the medium term—where the policymakers must strike a balance between supporting growth, protecting the vulnerable, and addressing debt concerns.

Economic forecasts: Asia and the Pacific
(real GDP growth, percent)

	2022	Proj. 2023	vs. Oct	Proj. 2024	vs. Oct
Asia	**3.8**	**4.6**	**0.3**	**4.4**	**-0.2**
Advanced economies	**1.8**	**1.6**	**-0.4**	**1.7**	**-0.2**
Australia	3.7	1.6	-0.3	1.7	-0.1
New Zealand	2.4	1.1	-0.8	0.8	-1.2
Japan	1.1	1.3	-0.3	1.0	-0.3
Hong Kong SAR	-3.5	3.5	-0.4	3.1	0.1
Korea	2.6	1.5	-0.5	2.4	-0.3
Singapore	3.6	1.5	-0.8	2.1	-0.5
Emerging markets and developing economies*	**4.4**	**5.3**	**0.4**	**5.1**	**-0.1**
Bangladesh	7.1	5.5	-0.5	6.5	0.0
Brunei Darussalam	-1.5	3.3	0.0	3.5	0.3
Cambodia	5.0	5.8	-0.4	6.2	-0.4
China	3.0	5.2	0.8	4.5	0.0
India**	6.8	5.9	-0.2	6.3	-0.5
Indonesia	5.3	5.0	0.0	5.1	-0.3
Lao P.D.R.	2.3	4.0	0.9	4.0	0.3
Malaysia	8.7	4.5	0.1	4.5	-0.4
Myanmar	2.0	2.6	-0.7	2.6	-0.8
Mongolia	4.8	4.5	-0.5	5.5	-1.5
Nepal	5.8	4.4	-0.6	5.1	0.0
Philippines	7.6	6.0	1.0	5.8	-0.2
Sri Lanka	-8.7	-3.0	0.0	1.5	0.0
Thailand	2.6	3.4	-0.3	3.6	0.0
Vietnam	8.0	5.8	-0.4	6.9	0.3
Pacific Island Countries***	**1.0**	**3.9**	**-0.3**	**3.6**	**-0.1**

Sources: IMF, World Economic Outlook database; and IMF staff calculations.
Note: *EMDEs exclude Pacific island countries and other small states. **India's data are reported on a fiscal year basis. Its fiscal year starts from April 1 and ends on March 31. ***Pacific island Countries aggregate is calculated using simple average, all other aggregates are calculated using weighted average.

IMF

The region must prioritize policy initiatives that foster innovation-driven economic development. The green transition presents a wide range of innovation opportunities that can become the region's new growth drivers. By investing in research and development, promoting entrepreneurship, strengthening education and digitalization, Asian countries can foster sustainable, long-term growth.

4. World Bank Approves US$400 Million to Help Increase Reliable, Green and Affordable Energy in the Dominican Republic

The World Bank approved US$400 million loan to support the Dominican Republic Government's measures to broaden transparency, accountability, and efficiency in the energy sector, increase access to reliable and affordable energy, and support the transition to cleaner, low-carbon energy sources.

The Electricity Reform for Sustainable Growth Development Policy Loan (DPL) is the second of two operations and it will continue to support fundamental policy and institutional reforms in the country's energy sector. The first operation in the series was approved on March 31, 2022.

Since 2014, the deficit generated by the electricity sector has represented between 1 to 2.3 % of the country's GDP, thus constituting a significant fiscal burden to the state and a bottleneck to green, resilient, and inclusive development. The Dominican Republic (DR) mostly relies on imported fossil fuels for power generation, which contributes to high greenhouse gas emissions (GHG) and poor and vulnerable households are disproportionally affected by unreliable access to basic electricity services.

Key reforms supported by the second DPL include putting in place effective mechanisms to enhance the efficiency of the distribution companies, provide strong incentives to scale up the integration of renewable energy in the power grid, decarbonize the transport sector, promote the implementation of energy efficiency measures to reduce GHG emissions, and strengthen the grid code to facilitate more reliable, affordable and resilient electricity services.

5. Trade-to-GDP Ratio at 2008 Financial Crisis Levels: World Bank Paper

A new study from the World Bank has found that the trade-to-GDP ratio, or 'trade openness' ration, has fallen to levels last seen during the 2008 financial crisis. This has been seen as a result of the COVID-19 pandemic, the Russia-Ukraine war and trade tensions between the US and China.

The paper by Sebastian Franco-Bedoya said the trade-to-GDP ratio had risen to 61% in 2008, before crashing to 52% in 2009 in the aftermath of the global financial crisis. The trade-to-GDP ratio recovered in 2011 to 60%, but since trended back to 52%. The dynamics after 2008 seem to suggest that globalization stagnated or declined. A low ratio may be attributed to factors such as size of the economy, geographic remoteness from trading partners, and the economy's structure etc.

Further the report states that India act as the driver of globalization in the South Asia region. After underperforming the world economy and having serious difficulties, India has made rapid progress in integrating into the global economy and recovered the lost ground to a large extent.

6. Indian Economy

India's economic growth

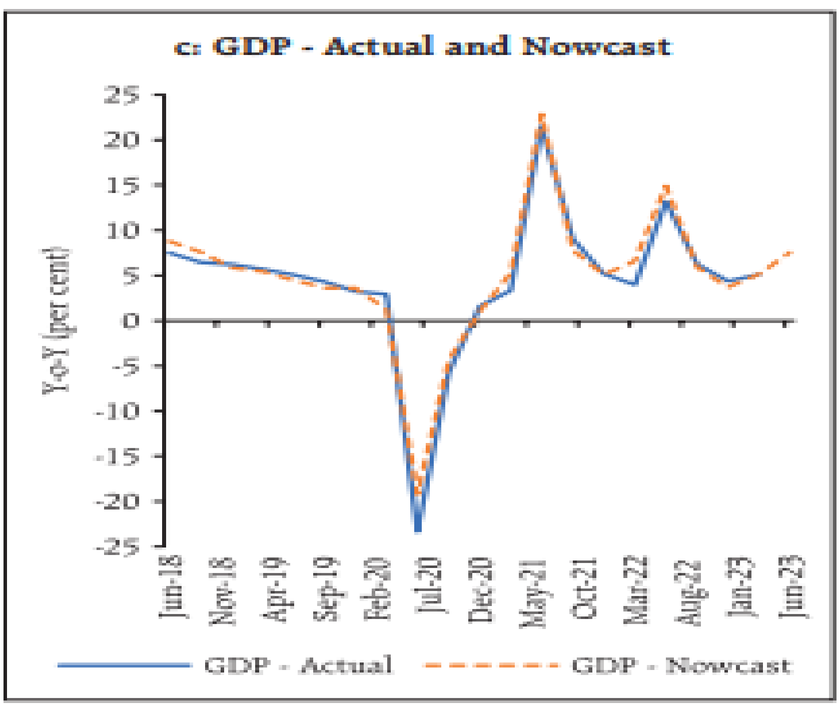
According to RBI's May 2023 Bulletin, domestic economic conditions have sustained the quickening of momentum seen in the last quarter of 2022-23. India's growth is likely to be driven primarily by private consumption, supported by reviving rural demand, and renewed buoyancy in manufacturing in the April-June 2023 quarter. The lead indicators affecting the growth of Indian economy are as follows: -

- There has been a significant boost in agricultural production with a robust rabi harvest season which would provide a boost to the rural economy.

- The services sector is on a roll, with big jumps in international and domestic air passenger traffic. India has moved up six places on the World Bank's Logistics Performance Index (April 2023 release) on account of better infrastructure, international shipments, and reduced dwell time in ports. The services PMI scaled a 13-year high in April 2023 on new business growth.

- The banking and financial sector remained resilient, with another quarter of strong revenue growth aided by strong credit growth. This indicates that this was mainly contributed by agriculture and allied activities, trade, and personal loans segments.

Figure- GDP forecast



Source- NSO, RBI estimates

PROVISIONAL ESTIMATES OF NATIONAL INCOME, 2022-23 AND QUARTERLY ESTIMATES OF GROSS DOMESTIC PRODUCT FOR THE FOURTH QUARTER (JANUARY-MARCH) OF 2022-23- National Statistical Office (NSO)

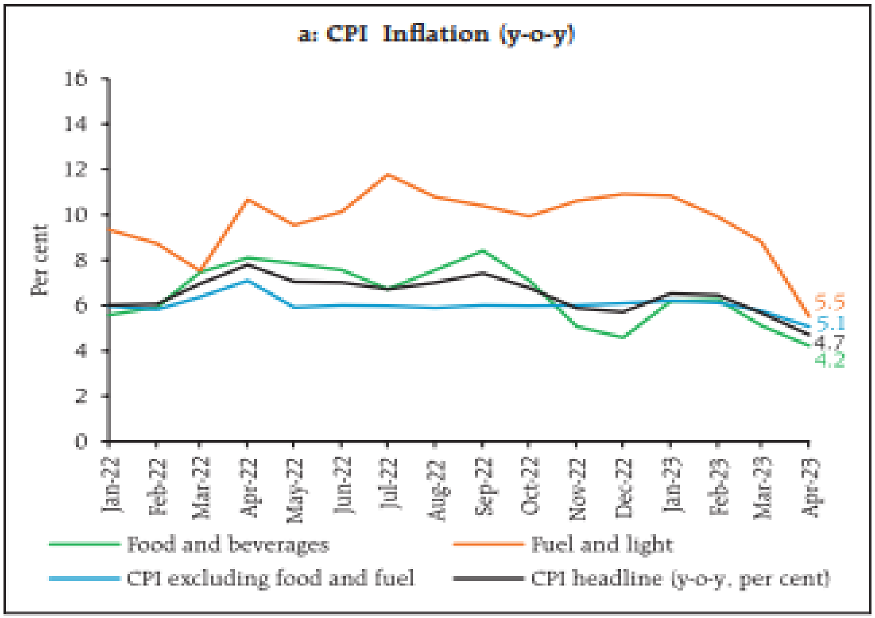
- According to NSO, Real GDP in the year 2022-23 is estimated to attain a level of ₹160.06 lakh crore, as against the First Revised Estimates of GDP for the year 2021-22 of ₹149.26 lakh crore. The growth in real GDP during 2022-23 is estimated at 7.2 % as compared to 9.1 % in 2021-22.
- Nominal GDP the year 2022-23 is estimated to attain a level of ₹272.41 lakh crore, as against ₹234.71 lakh crore in 2021-22, showing a growth rate of 16.1 %.
- For the 4th quarter of 2022-23, India's economy grew 6.1 %, pushing up the annual growth rate to 7.2 % for FY 2023.
- The government's final consumption expenditure (GFCE) inched higher to ₹15,77,306 crore in FY23 as against ₹15,75,281 crore in FY22.
- The production growth of eight key infrastructure sectors slowed down to a six-month low of 3.5 per cent in April 2023 due to a decline in the output of crude oil, natural gas, refinery products and electricity. The core sector growth was 9.5 per cent in April 2022, while in March 2023, the key infra sectors recorded a growth rate of 3.6 per cent. The growth rate in April 2023 is the lowest since October 2022 when the sectors expanded by 0.7 per cent.
- India's manufacturing sector saw a sharp slowdown in growth to 1.3% in FY23 versus 11.1% in the previous fiscal.
- GVA in agriculture, forestry and fishing saw a growth of 4% in FY23, rising from 3.5% in FY22.
- Financial, real estate and professional services recorded a growth of 7.1% versus 4.7% in FY22.
- Construction sector also slowed down to 10% growth in FY23 versus 14.8% in FY22.
- For 2023-24, RBI is projecting GDP growth at 6.5 per cent with the first quarter (Q1) pegged at 7.6 per cent.
- India's fiscal deficit for April stood at 1.34 lakh crore rupees or 7.5% of annual estimate. The deficit sharply widened from 4.5% in comparable period last year.

Inflation in India

- Consumer Price Index (CPI), slipped to an 18-month low of 4.70% in April 2023 from 5.66% in March 2023 largely due to moderation in food prices, which accounts for nearly half of the overall consumer price basket.
- CPI food inflation (y-o-y) moderated sharply to 4.2 % in April 2023 from 5.1 % in March 2023.

- Inflation in the fuel and light group declined to 5.5 % in April 2023 from 8.8 % in March 2023.

Figure- India retail inflation



Source- RBI

- According to the latest data from the Department for Promotion of Industry and Internal Trade, Ministry of Commerce & Industry, Wholesale Price Index (WPI), which calculates the overall prices of goods before selling at retail prices, declined to -0.92% in April 2023, from 1.34% in March 2023.
- For FY 2024, RBI has projected inflation at 5.2%.
- In a monetary policy meeting held on April 6, the RBI had decided to pause its consecutive rate hikes and keep the benchmark repo rate at 6.50%. The Monetary policy Committee (MPC) decided to remain focused on withdrawal of accommodation to ensure inflation progressively aligns with the target while supporting growth.

India PMI

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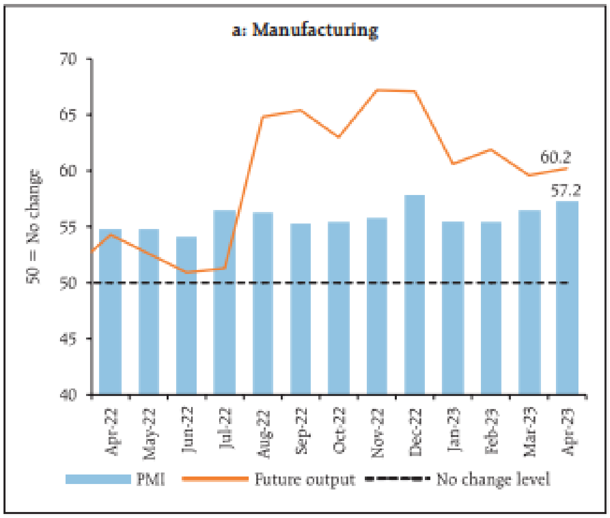

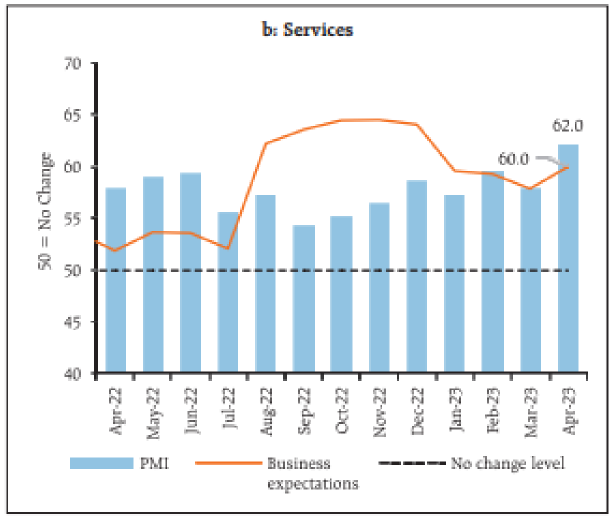

Source- S&P Global

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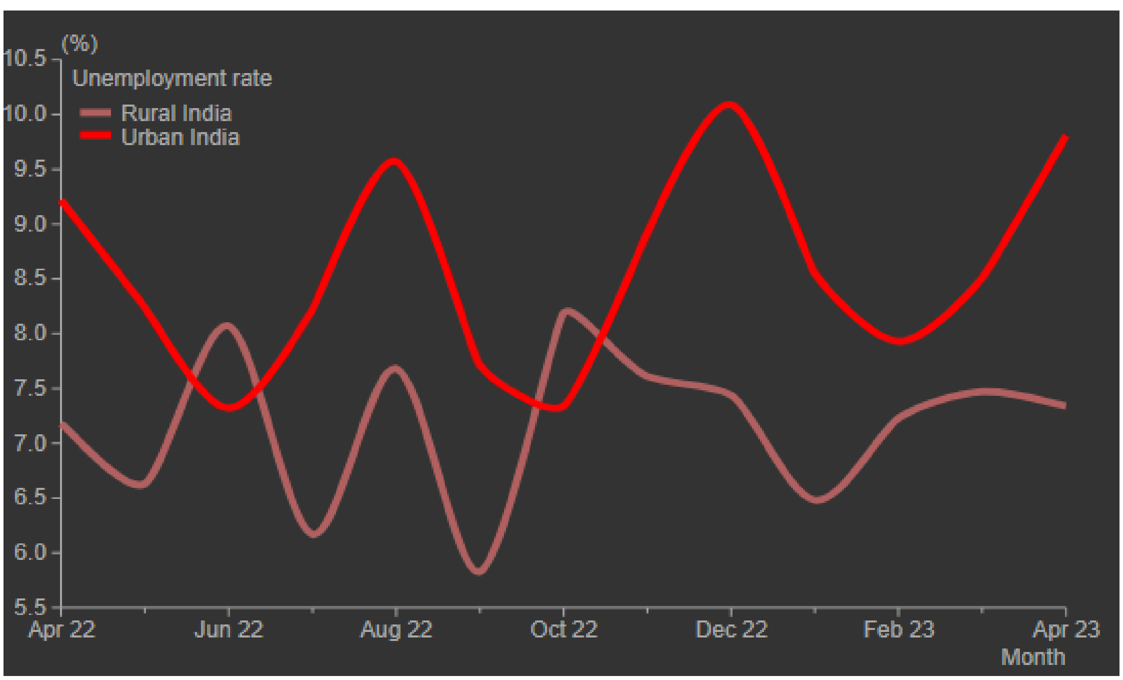


Source- CMIE

India’s external position

India’s FPI position

Foreign Portfolio Investors (FPIs) have pumped Rs 37,316 crore in Indian equities in May, primarily due to strong macroeconomic fundamentals and reasonable valuation of stocks. This is the highest investment by FPIs in the last six months. The outlook for FPI flows has significantly improved, primarily due to the completion of the quantitative tightening cycle in the US and India's recent outperformance in comparison to global equities.

India’s forex position

According to Reserve Bank of India, India's foreign exchange reserves saw a rise of $7.196 billion to $595.98 billion as on May 5, 2023. India's forex reserves reached a 10-month-high of $588.8 billion in the week through April 28, recovering from a drop to $524.5 billion last October, when the rupee hit a record low against the U.S. dollar. Overall FCA rose by $6.536 billion to $526.021 billion. Gold reserves saw a rise of $659 million to $46.315 billion while Special Drawing Rights (SDRs) dipped by $19 million to $18.447 billion. India's reserve position in the IMF rose by $20 million to $5.192 billion.

India’s foreign trade position

- India’s overall exports (Merchandise and Services combined) in April 2023 is estimated to be USD 65.02 Billion, exhibiting a growth of 2.00 % over April 2022.

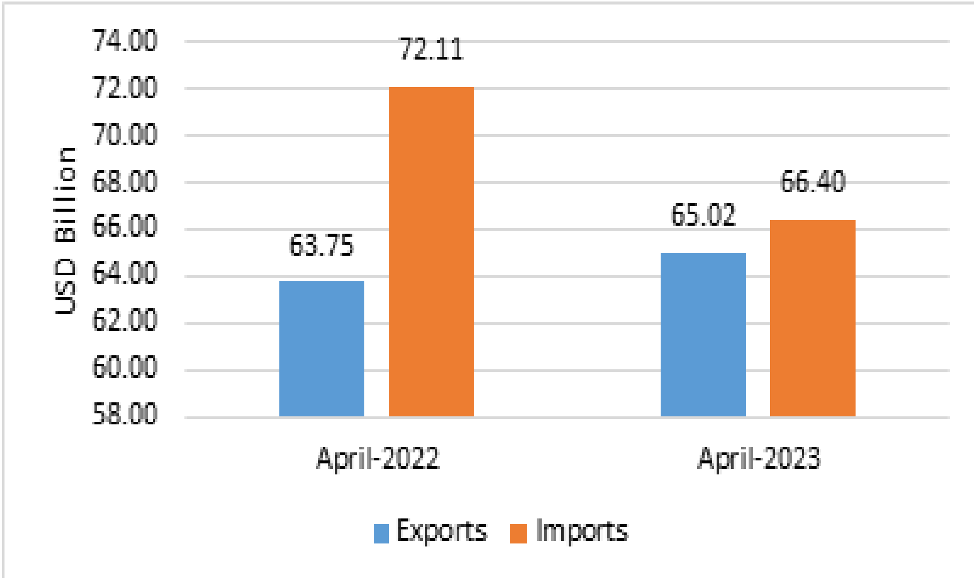
- Overall imports in April 2023 is estimated to be USD 66.40 Billion, exhibiting a negative growth of (-) 7.92 % over April 2022.

Table- Trade during April 2023

		April 2023 (USD Billion)	April 2022 (USD Billion)
Merchandise	Exports	34.66	39.70
	Imports	49.90	58.06
Services*	Exports	30.36	24.05
	Imports	16.50	14.06
Overall Trade (Merchandise +Services) *	Exports	65.02	63.75
	Imports	66.40	72.11
	Trade Balance	-1.38	-8.37

Source- RBI

Figure- Overall trade during April 2023



Source- RBI

- India's overall exports is projected to grow at 2 % during April 2023.
- Under merchandise exports, 11 of the 30 key sectors exhibited growth in April 2023 as compared to the same period last year (April 2022). These include Oil Meals (95.14%), Electronic Goods (26.49%), Rice (24.01%), Oil Seeds (18.01%), Ceramic Products & Glassware (17.21%), Spices (14.44%), Drugs & Pharmaceuticals (10.45%), Fruits & Vegetables (9.96%), Tobacco (6.28%), Coffee (4.17%) and Cereal Preparations & Miscellaneous Processed Items (2.03%).
- Exports of Electronic goods increased by 26.49 % during April 2023 at USD 2.11 Billion as compared to USD 1.67 Billion in April 2022.
- Services exports remain robust and projected to grow at 26.24 % during April 2023 over April 2022

7. Goldman Sachs hikes India's 2023 GDP forecast to 6.3%

Owing to increased net exports, Goldman Sachs has forecasted an increase in the India GDP for FY 2023-24. The GDP growth forecast was raised to 6.3% year-on-year from the 6% it predicted earlier. It has estimated GDP growth for January-March 2023 at 4.9 %, 6.5 % for April-June 2023, 5.9 % for July-September 2023 and 8.1 % for October-December 2023. Goldman Sachs expects a pick-up in government expenditure in the second half of FY24 before the general elections in 2024.

8. 3rd advance estimates peg foodgrain output at 330.5 million tonnes

The Ministry of Agriculture and Farmers Welfare has released the third advance estimates of production of major kharif crops for 2022-23. The data shows that the country's foodgrain production is likely to rise by 4.7 % to an all-time high of 330.5 million tonnes in the current crop year ending June 2023 as against 315.6 million tonnes in the previous year. The assessment of production of different crops is based on the feedback received from States and validated with information available from other sources. This assessment shall undergo further revision over successive estimates based upon feedback received from the states, alternative sources, and other factors.

Figure- 3rd advance estimates of crop production (MT)

Crops	2021-22	2022-23	% change
Foodgrains	315.6	330.5	4.7
Rice	129.5	135.5	4.6
Wheat	107.7	112.7	4.6
Coarse Cereals	51.1	54.7	7.0
Pulses	27.3	27.5	0.7
Oilseeds	38.0	41.0	7.9
Cotton*	31.1	34.4	10.6
Jute & Mesta**	10.1	9.5	-5.9
Sugarcane	439.4	494.2	12.5
Note: *million bales of 170 kg each			
Note: **million bales of 180 kg each			

Source- Ministry of Agriculture & Farmers Welfare

9. Integrating NE with neighboring nations could raise GDP by 8%: World Bank

- According to World Bank, India's gross domestic product (GDP) could rise by as much as eight % if its northeastern region is fully integrated and the logistical bottlenecks are removed with the neighboring countries like Bangladesh, Nepal, and Bhutan.
- World Bank stated that currently India only trades one- third of its potential with the South Asia region and therefore has significant untapped opportunities.
- India's exports alone would see an increase of 170 % if it were to finalize agreements with Bangladesh.
- Similarly, the northeastern region will see an increase in its GDP by 11 % and a significant increase in its exports as well, if the motor vehicles agreement (MVA) between the countries in the region is operationalized.

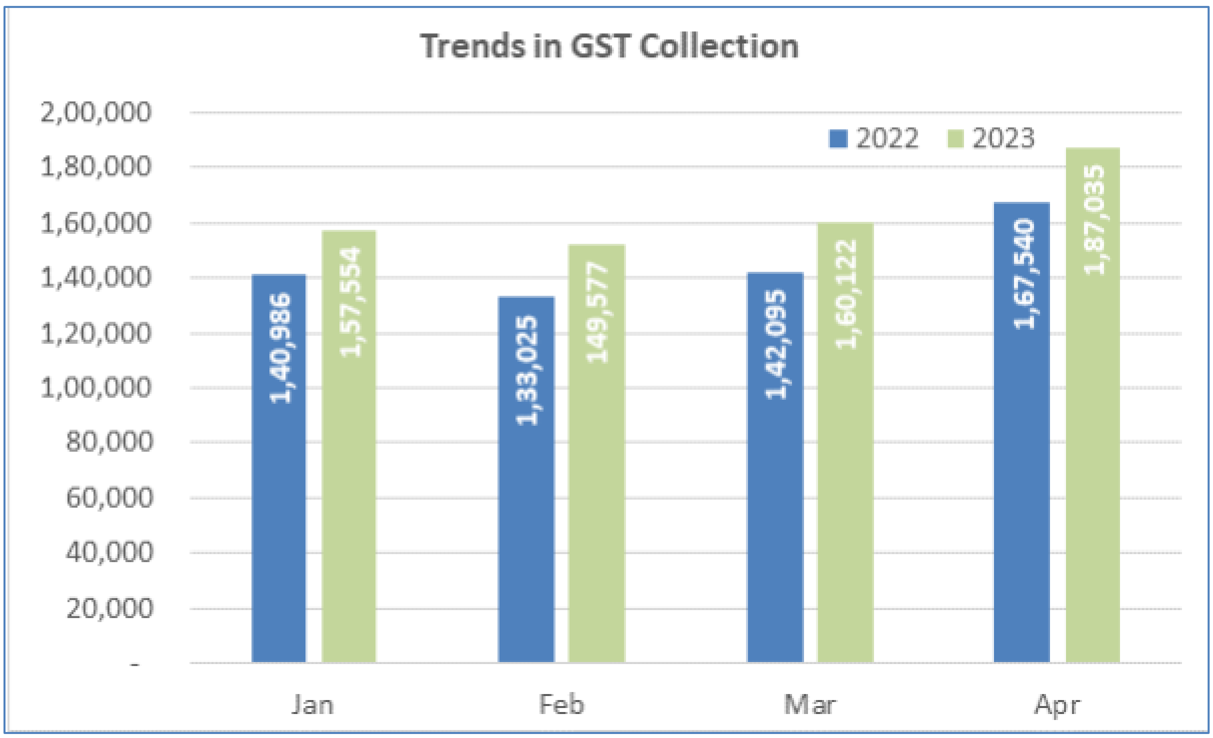
10. GST revenue collection for April 2023 highest ever at Rs 1.87 lakh crore

- The gross GST revenue collected in the month of April, 2023 is ₹ 1,87,035 crore of which CGST is ₹38,440 crore, SGST is ₹47,412 crore, IGST is ₹89,158 crore (including ₹34,972 crore collected on import of goods) and cess is ₹12,025 crore (including ₹901 crore collected on import of goods).

- The total revenue of Centre and the States in the month of April 2023 after regular settlement is ₹84,304 crore for CGST and ₹85,371 crore for the SGST.

- The revenues for the month of April 2023 are 12% higher than the GST revenues in the same month last year. During the month, the revenues from domestic transactions (including import of services) are 16% higher than the revenues from these sources during the same month last year.

- Total number of e-way bills generated in the month of March 2023 was 9.0 crore, which is 11% higher than 8.1 crore e-way bills generated in the month of February 2023.



- On 20th April 2023, ₹ 68,228 crore was paid through 9. 8 lakh transactions. The highest single day payment last year (on the same date) was
₹ 57,846 crore through 9.6 lakh transactions.

Lessons from Economics

EXTERNALITIES

An externality is a cost or benefit caused by a producer that is not financially incurred or received by that producer. An externality can be both positive or negative and can stem from either the production or consumption of a good or service. The costs and benefits can be both private—to an individual or an organization—or social, meaning it can affect society.

For instance- Pollution caused by commuting to work or a chemical spill caused by improperly stored waste are examples of externalities.

Types of Externalities

- **Negative Externalities**

A negative externality exists when the production or consumption of a product results in a cost to a third party. Air and noise pollution are commonly cited examples of negative externalities. If goods or services have negative externalities, then it leads to market failure. This is because individuals fail to consider the costs to other people. To achieve a more socially efficient outcome, the government can levy tax on the goods with negative externalities. This can reduce the harmful effects of certain externalities such as air pollution, smoking, etc. An effective tax thus will equal the cost of the externality, and it is imposed with the goal of discouraging activities that cause such harmful effects.

- **Positive Externalities**

Positive externalities occur when there is a positive gain on both the private level and social level. Research and development (R&D) conducted by a company can be a positive externality. R&D increases the private profits of a company but also has the added benefit of increasing the general level of knowledge within a society. Further, the emphasis on education is also a positive externality. Investment in education leads to a smarter and more intelligent workforce.

Remedies to Externalities

- **Taxes**

Taxes are one solution to overcoming externalities. To help reduce the negative effects of certain externalities such as pollution, governments can impose a tax on the goods causing the externalities. The tax, called a Pigovian tax—named after economist Arthur C. Pigou—is equal to the value of the negative externality.

- **Subsidies**

Subsidies can also overcome negative externalities by encouraging the consumption of a positive externality. The subsidy is often placed on an opposing item to detract from a specific activity as well.

Real-World Examples of Externalities

Many countries around the world enact carbon credits that may be purchased to offset emissions. These carbon credit prices are market-based that may often fluctuate in cost depending on the demand of these credits to other market participants.

Different agencies are imposed a cap on externalities. Agencies that struggle managing their externality (i.e., pollution) may need to purchase additional credits to have their cap increased. Other agencies that conquer their externality may sell part of their cap space to recover capital likely used to overcome their externalities.

Oil Market

Crude oil price – Monthly Review

Oil prices retreated during April and beginning May as concerns over the condition of the global economy and oil demand prospects depressed market sentiment. North Sea Dated plunged by nearly $16/bbl in just two weeks, reversing gains that followed the surprise announcement by some OPEC+ countries to cut output from May. Prices were pressured lower by muted industrial activity and higher interest rates, which, combined have led to recessionary scenarios gaining traction and worries of a downward shift in oil demand growth. The current market pessimism, however, stands in stark contrast to the tighter market balances that IEA anticipates in the second half of the year, when demand is expected to eclipse supply by almost 2 mb/d.

Recent price declines are caused by a combination of supply and demand market factors. On the demand side, news of a decrease in China's manufacturing Purchasing Managers' Index, an indicator of economic conditions, added to market concerns about China's economic growth and a possible U.S. recession. Market concerns about the banking sector after First Republic Bank was closed and subsequently sold also added to concerns about global economic growth and oil demand.

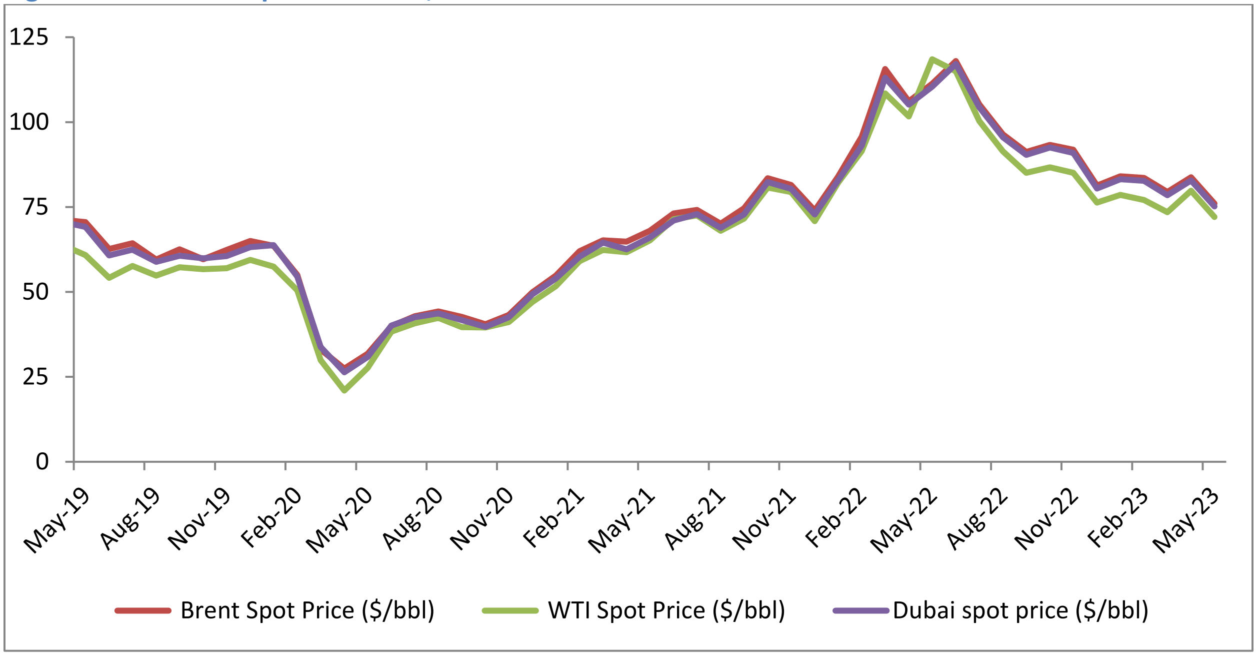
On the supply side, oil flows from Russia have remained higher than expected, increasing global oil supply and putting downward pressure on crude oil prices. However, in April 2023, OPEC+ members agreed to cut oil production through 2023. As per EIA forecast, OPEC total production of liquid fuels will decline from 34.0 million barrels per day (b/d) in April to average 33.7 million b/d for the rest of 2023.

Additionally, OPEC+ countries will adhere to voluntary production cuts, recent disruptions to crude oil exports from Iraq and a force majeure limiting crude oil exports from Nigeria have also reduced the near-term OPEC liquid fuels production forecast. EIA expects that these supply constraints will put upward pressure on crude oil prices. In 2024, EIA expect OPEC liquid fuels production will increase by 0.7 million b/d to 34.4 million b/d, driven by an end of the currently agreed upon OPEC+ production cuts in 2023.

As per market estimates, Brent crude oil price will increase from $74/b in May 2023 to $79/b in September before declining slightly to average $78/b in the last three months of 2023 and West Texas Intermediate (WTI) is also expected to follow a similar path.

Brent crude ranged an average to $76.12 a barrel and WTI ranged to $72.20 per barrel in the month of May.

Figure 1: Benchmark price of Brent, WTI and Dubai crude



Source: World Bank

- Brent crude price averaged $76.03 per bbl in May 2023, down by 9.2% on a month on month (MoM) and 31.7% on year on year (YoY) basis, respectively.
- WTI crude price averaged $72.09 per bbl in May 2023, down by 9.7% on a month on month (MoM) and 39.2% on year on year (YoY) basis, respectively.
- Dubai crude price averaged $75.17 per bbl in May 2023, down by 9.3% on a month on month (MoM) and 31.9% on year on year (YoY) basis, respectively.

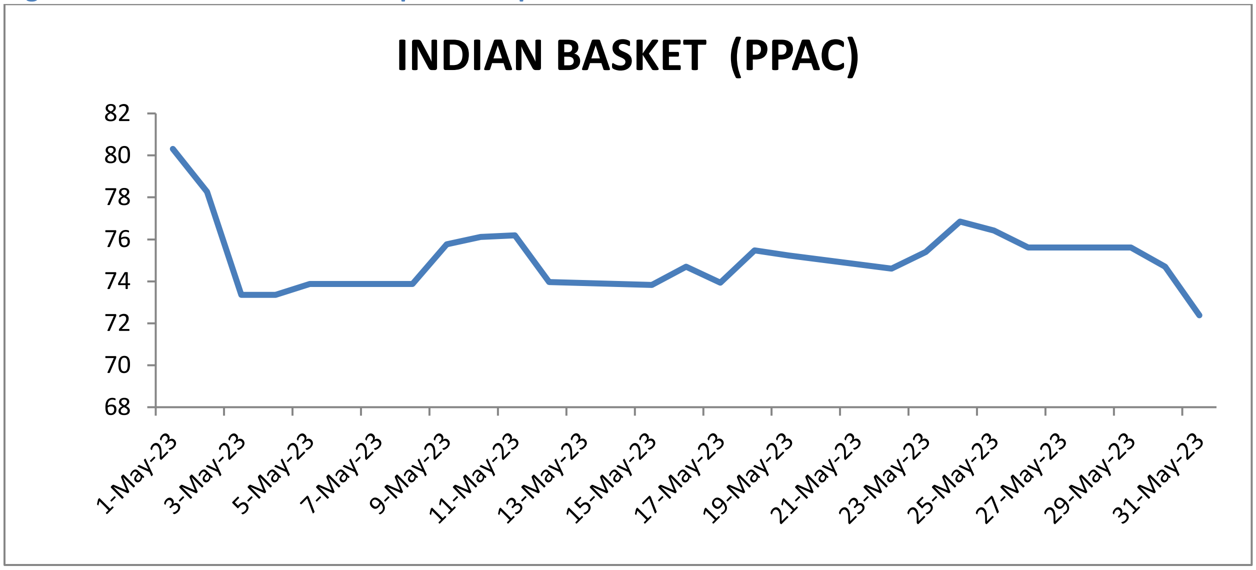
Table 1: Crude oil price in May, 2023

Crude oil	Price ($/bbl)	MoM (%) change	YoY (%) change
Brent	76.03	-9.2%	-31.7%
WTI	72.09	-9.7%	-39.2%
Dubai	75.17	-9.3%	-31.9%

Source: World Bank

Indian Basket Crude oil price

Figure 2: Indian crude oil basket price in $ per bbl



Source: PPAC

- Indian crude basket price averaged $75.21 per barrel in May 2023, down by 9.9% on Month on Month (M-o-M) and 30.8% on a year on year (Y-o-Y) basis, respectively.

Oil production situation

- With world oil supply set to fall further, as new OPEC+ cuts take effect, global oil inventories may again come under pressure. The release of record volumes from IEA government stocks over the past year has reduced the industry inventory deficit versus its five-year average to less than 90 mb from more than 300 mb a year ago. According to preliminary data for April, shows a rise in on-land product stocks. Those builds may help mitigate price volatility in the near future if supply falls short of the seasonal rise in world oil demand.
- In April, Russian oil exports reached a post-invasion high of 8.3 mb/d. According to IEA, Moscow did not deliver its announced 500 kb/d supply cut in full, thereby making Russia to boost its volumes to make up for lost revenue. The country's oil export revenues rose by $1.7 bn to $15 bn as compared to month ago, but were 27% lower than a year ago while tax receipts from its oil and gas sector were down by 64% y-o-y.

Table 2: Non-OPEC liquids production in 2023, mb/d

Non-OPEC liquids production	2022	1Q23	2Q23	3Q23	4Q23	2023
Americas	*26.84*	*27.72*	*27.89*	*28.23*	*28.52*	*28.09*
of which US	19.21	19.87	20.18	20.36	20.56	20.24
Europe	*3.57*	*3.68*	*3.74*	*3.79*	*3.92*	*3.78*
Asia Pacific	0.48	0.45	0.49	0.49	0.48	0.48
Total OECD	**30.89**	**31.85**	**32.12**	**32.51**	**32.91**	**32.35**
China	4.48	4.62	4.61	4.49	4.49	4.55
India	0.77	0.76	0.78	0.78	0.78	0.78
Other Asia	2.31	2.34	2.39	2.34	2.37	2.36
Latin America	6.34	6.70	6.66	6.70	6.79	6.71
Middle East	3.29	3.26	3.29	3.30	3.31	3.29
Africa	1.31	1.30	1.33	1.34	1.33	1.33
Russia	11.03	11.23	10.18	9.85	9.90	10.85
Other Eurasia	2.83	3.00	2.97	2.94	2.98	2.97
Other Europe	0.11	0.10	0.10	0.10	0.10	0.10
Total Non-OECD	**32.47**	**33.31**	**32.30**	**31.85**	**32.05**	**32.37**
Total Non-OPEC production	63.36	65.15	64.43	64.35	64.97	64.72
Processing gains	2.40	2.47	2.47	2.47	2.47	2.47
Total Non-OPEC liquids production	**65.76**	**67.62**	**66.90**	**66.82**	**67.44**	**67.19**
Previous estimate	**65.76**	**67.58**	**66.71**	**66.90**	**67.57**	**67.19**
Revision	0.00	0.04	0.18	-0.08	-0.13	0.00

Source: OPEC

- From the above table, it can be inferred, that the total non-OPEC liquids production is expected to reach 67.19 mb/d by 2023.
- OPEC NGLs and non-conventional liquids production in 2022 is forecast to have grown by 0.1 mb/d to average 5.4 mb/d, and is expected to increase by 50 tb/d to average 5.4 mb/d in 2023.
- OPEC-13 crude oil production averaged 28.60 mb/d in April 2023, lower by 191 tb/d m-o-m.

Oil demand situation

- World oil demand is forecast to rise by 2.2 mb/d year-on-year in 2023 to an average 102 mb/d, 200 kb/d above last month's estimate. China, the world's second biggest oil user after the U.S. will account for ~60% of global growth in 2023. China's demand recovery continues to surpass expectations, with the country setting an all-time record in March at 16 mb/d. While the OECD is set to return to growth in 2Q23, its average 2023 increase of 350 kb/d pales in comparison with 1.9 mb/d in non-OECD gains. Overall, world oil demand is set to average 102 mb/d in 2023, 1.3 mb/d more than 2019.

Table 3: World Oil demand, mb/d

	2022	1Q23	2Q23	3Q23	4Q23	2023	Growth	%
Total OECD	**45.95**	**45.50**	**45.55**	**46.87**	**46.15**	**46.02**	**0.07**	**0.15**
~ of which US	*20.43*	*20.16*	*20.43*	*20.75*	*20.37*	*20.43*	*0.00*	*-0.01*
Total Non-OECD	**53.62**	**56.09**	**55.16**	**55.16**	**57.10**	**55.88**	**2.26**	**4.21**
~ of which India#	*5.14*	*5.40*	*5.44*	*5.21*	*5.50*	*5.39*	*0.25*	*4.89*
~ of which China	14.85	15.63	15.40	15.43	16.16	15.66	0.80	5.42
Total world	**99.57**	**101.58**	**100.70**	**102.03**	**103.25**	**101.90**	**2.33**	**2.34**

Source: OPEC monthly report, May 2023

Note: 2023 = Forecast. Totals may not add up due to independent rounding*

Global petroleum product prices

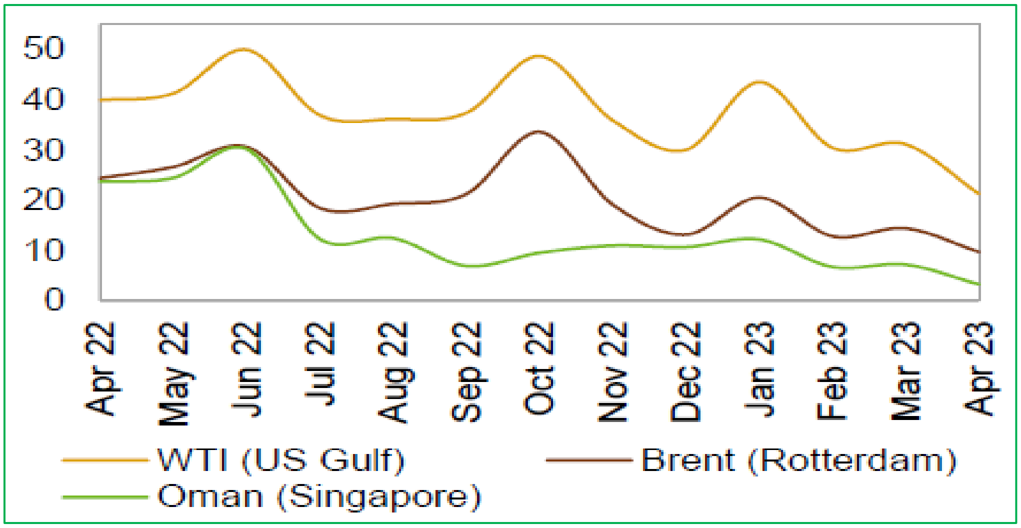
USGC refining margins against WTI declined and exhibited the largest monthly loss compared to those seen in key trading hubs of other regions. The weakness stemmed from middle distillates, which offset the positive performance seen at the top and bottom of the barrel. With refinery runs on the rise for the second consecutive month, product availability in the country has improved. This was particularly the case of jet/kerosene, which showed an extension of its sharp upward trend and managed to surpass the rolling 5-year average inventory level after several months of remaining below the mark. Consequently, jet/kerosene prices showed the largest price drop across the barrel in the US. Gasoil, the second largest negative contributor to the US refining situation over the month, has faced challenges finding export destinations as Russian gasoil deliveries to South America have increased.

In addition, demand loss for space heating due to the end of the winter season, concerns over a softening US economy and expectations of weaker gasoil demand for the industrial sector amid weakening manufacturing activities are likely to have eroded previous concerns over impending gasoil shortage. These combined factors led to steep losses in gasoil margins which fell from nearly zero seen in the previous month into double-digit-negative territory in April, reaching a new multi-year record low. Regarding operations, refinery intake in the US continued to increase and gained 300 tb/d m-o-m to an average of 16.37 mb/d in April. USGC margins against WTI averaged \$21.21/b in April, down by \$9.88 m-o-m and by \$18.66 y-o-y.

Refinery margins in Rotterdam against Brent weakened as high middle distillate arrivals in Europe from India and the Middle East amid rising domestic refinery product output expanded the corresponding product's availability and weighed on middle distillate crack spreads. Product outputs were boosted by the complete return to operations of all French refineries following the strike-related product supply disruptions. Nonetheless, product balances were reported to have remained tight in Southern Germany around the second half of the month due to maintenance. This loss of supply lent support to product flows from the Amsterdam-Rotterdam-Antwerp storage hub through the Rhine River into Southern Germany, which helped keep losses in European product markets somewhat limited.

Refinery throughput in Europe showed a rebound in April and increased by 440 tb/d to an average of 9.89 mb/d according to preliminary data. Refinery margins against Brent in Europe averaged $9.75/b in April, $4.66 lower compared with a month earlier, and $14.61 lower y-o-y.

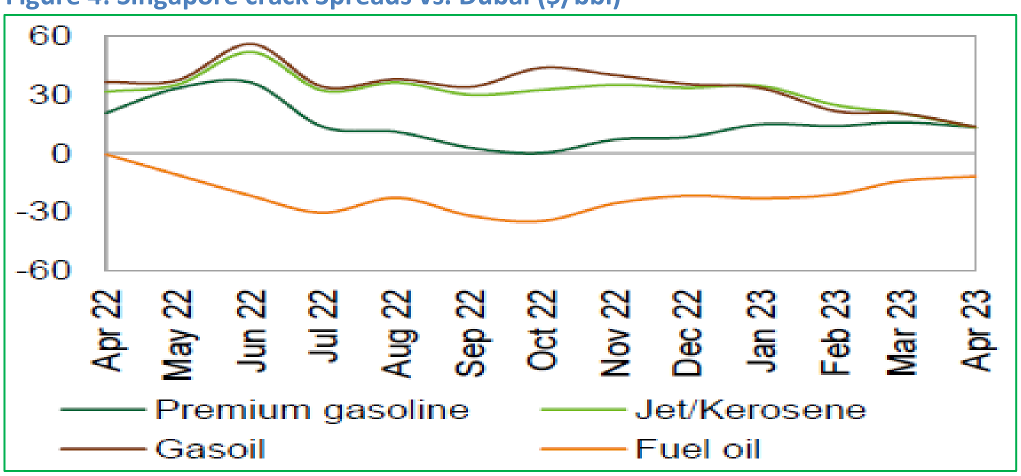
Figure 3: Refining Margins ($/bbl)



Source: Argus and OPEC

The Asian gasoline 92 crack spread weakened reflecting the strong flows from China into Singapore. Despite the ongoing refinery maintenance season in the region, offline capacities have remained very low, indicating stability in regional product output levels, keeping the region well supplied. The Singapore gasoline crack spread against Dubai in April averaged $13.12/b and was down $2.71 m-o-m and $7.42 y-o-y.

Figure 4: Singapore crack Spreads vs. Dubai ($/bbl)



Source: Argus and OPEC

The Singapore gasoil crack spread lost some ground, pressured by strong volume arrivals from the Middle East. The Singapore gasoil crack spread against Oman averaged $13.51/b, down $6.92 m-o-m and $22.76 y-o-y.

Table 4: Singapore FOB, refined product prices ($/bbl) in April 2023

Singapore product prices	Price ($/b)	MoM (%) change	YoY (%) change
Naphtha	71.54	-2.3%	-26.8%
Premium gasoline (unleaded 95)	100.14	1.6%	-21.0%
Regular gasoline (unleaded 92)	96.52	2.4%	-21.8%
Jet/Kerosene	96.78	-2.1%	-28.0%
Gasoil/Diesel (50 ppm)	98.24	-4.0%	-33.8%
Fuel oil (180 cst 2.0% S)	92.91	-2.5%	-32.3%
Fuel oil (380 cst 3.5% S)	71.74	11.4%	-30.0%

Source: OPEC

Petroleum products consumption in India

Monthly Review:

- Overall consumption of all petroleum products in April 2023 with a volume of 18.41 MMT registered a growth of 1.15% on volume of 18.20 MMT in April 2022.

- MS (Petrol) consumption during the month of April 2023 with a volume of 2.88 MMT recorded a growth of 2.83% on volume of 2.79 MMT in April 2022.

- HSD (Diesel) consumption during the month of April 2023 with a volume of 7.82 MMT recorded a growth of 8.56% on volume of 7.20 MMT in the month of April 2022.

- LPG consumption during the month of April 2023 with a volume of 2.15 MMT registered de-growth of 0.45% over the volume of 2.16 MMT in the month of April 2022.

- ATF consumption during April 2023 with a volume of 0.655 MMT registered a growth of 18.50% over the volume of 0.553 MMT in April 2022.

- Bitumen consumption during April 2023 with a volume of 0.737 MMT registered de-growth of 3.31% over volume of 0.762 MMT in the month of April 2022.

- Kerosene consumption registered de-growth of 58.04% during the month of April 2023 as compared to April 2022.

Table 5: Petroleum products consumption in India, April 2023

CONSUMPTION OF PETROLEUM PRODUCTS (P)	Consumption in '000 MT	MoM (%) change	YoY (%) change
LPG	2,154	-10.5%	-0.5%
Naphtha	1,083	-5.6%	-0.1%
MS	2,877	-7.4%	2.8%
ATF	655	-4.8%	18.5%
SKO	30	1.2%	-58.0%
HSD	7,820	0.3%	8.6%
LDO	58	-26.8%	11.5%
Lubricants & Greases	299	-31.7%	-16.3%
FO & LSHS	586	0.4%	12.2%
Bitumen	737	-21.0%	-3.3%
Petroleum coke	1,333	-6.6%	1.9%
Others	777	-58.3%	-41.3%
TOTAL	**18,409**	**-10.2%**	**1.1%**

Source: PPAC

Natural Gas Market

Natural Gas Price – Monthly Review

- Natural gas spot prices at the U.S. Henry Hub benchmark averaged $2.16 per million British thermal units (MMBtu) in April 2023. The Henry Hub spot price started to decline due to mild temperatures in much of the Lower 48 states that reduced demand for natural gas for heating and resulted in less-than-average natural gas withdrawals from storage. As per EIA, natural gas storage inventories are expected to remain above their five-year averages throughout 2023, that contributes to lower prices compared with last year.

- The natural gas spot price at the Title Transfer Facility (TTF) in the Netherlands in Europe traded at an average of $13.52 per MMBtu. Price of natural gas at the Dutch Title Transfer Facility (TTF) decreased due to mild weather conditions prevailing in the current scenario supplemented by Governments decisions that have led to EU adopting strict measures to lower down the consumption of natural gas, including switching off streetlights and hot water in public buildings among others.

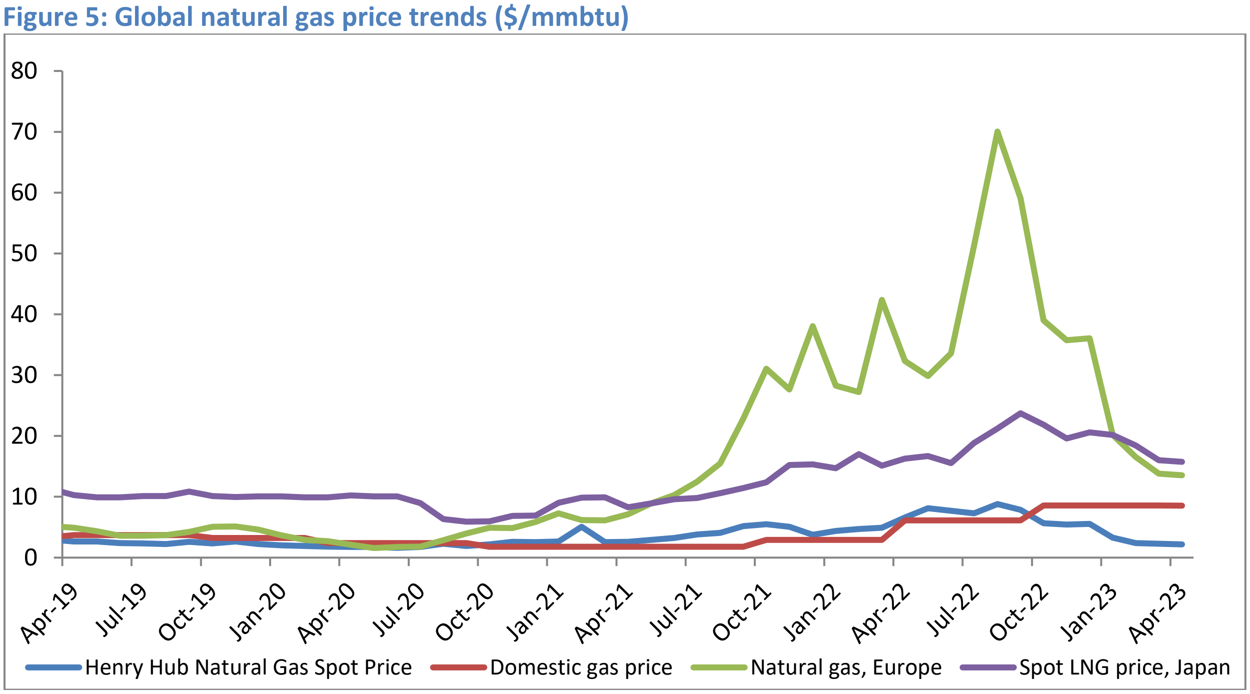
- Japan Liquefied Natural Gas Import Price averaged at $15.73 per MMBtu for April 2023, down from $16.03 per MMBtu in March 2023. Japan's Ministry of Economy, Trade and Industry (METI) is planning a strategic LNG reserve to ensure the country has enough natural gas to meet domestic demand as global competition ramps up. METI's proposal is primarily aimed at preventing gas shortages and preparing Japan, one of the world's largest buyers of liquefied natural gas, for battling Europe for cargoes in the years ahead as the continent displaces Russian imports.

- The Union Cabinet has approved a new formula for pricing of natural gas and imposed cap or ceiling price on the same. Natural gas produced from legacy or old fields, known as APM gas, will now be indexed to crude oil prices. From April 1 2023, APM gas will be priced at 10 per cent of the price of basket of crude oil that India imports. The rate such arrived at however will be capped at USD 6.5 per MMBTU. The price such arrived at will also have a floor of USD 4 per MMBTU.

- Further, in accordance with MoP&NG, Govt. of India, pricing freedom for gas being produced from discoveries in Deepwater, Ultra Deepwater and High Pressure-High Temperature areas, the gas price ceiling for the period 1st April, 2023 - 30th September, 2023 was notified as US$ 12.12/MMBTU on Gross Calorific Value (GCV) basis as per notification dated 31st March, 2023. However, on 7th April, 2023, the price of domestic natural gas for the period 1st April 2023 to 7th April 2023 was notified as US$ 9.16/MMBTU on GCV basis. Further, the price of domestic natural gas for the period 8th April 2023 to 30th April 2023 was notified as US$ 7.92/MMBTU.

- On 30th April 2023, in accordance with MoP&NG 's notification, the price of domestic natural gas for the period 1st May 2023 to 31st May 2023 was notified as US$ 8.27/MMBTU on GCV basis. Subsequently, on 31st May 2023, in accordance with MoP&NG 's notification, the price of domestic natural gas for the period 1st June 2023 to 30th June 2023 was notified as US$ 7.58/MMBTU on GCV basis.

Figure 5: Global natural gas price trends ($/mmbtu)



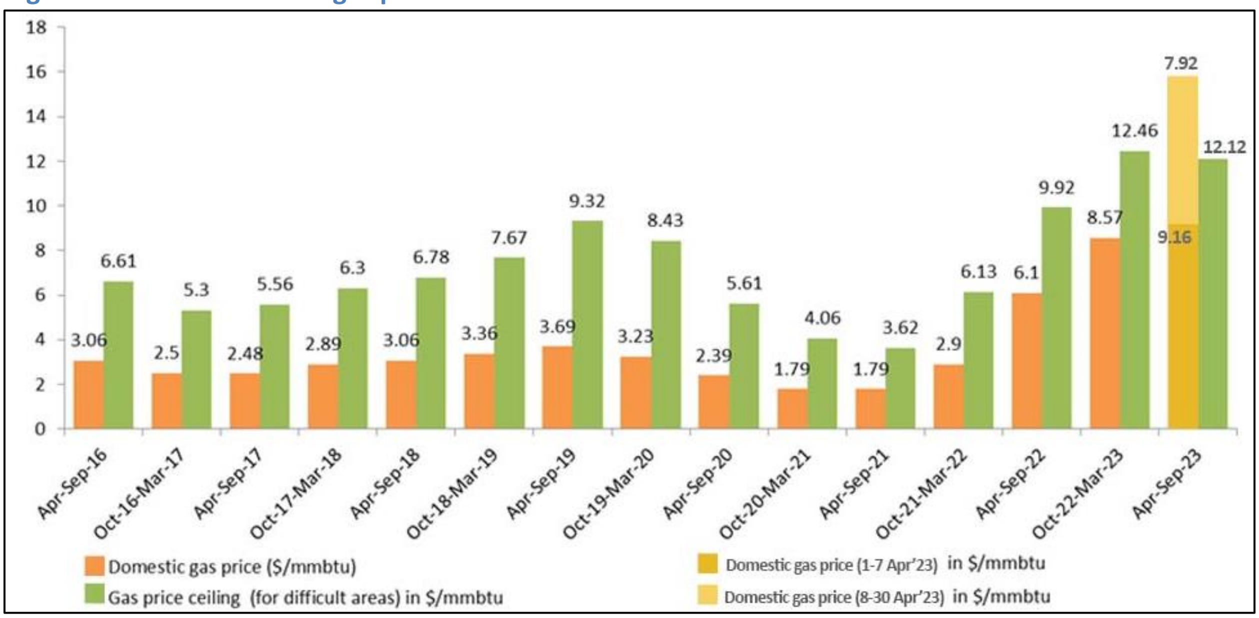
Source: EIA, World Bank

Table 6: Gas price, April 2023

Natural Gas	Price ($/MMBTU)	MoM (%) change	YoY (%) change
India, Domestic gas price (1-7 Apr'23)	9.16	-	-
India, Domestic gas price (8-30 Apr'23)	7.92	-	-
India, Gas price ceiling – difficult areas	12.12	-2.73%	22.18%
Henry Hub	2.16	-6.5%	-67.3%
Natural Gas, Europe	13.52	-2.1%	-58.1%
Liquefied Natural Gas, Japan	15.73	-1.9%	-3.4%

Source: EIA, PPAC, World Bank

Figure 6: Domestic natural gas price



Source: PPAC

Indian Gas Market

- Gross production of natural gas for the month of April 2023 was 2,745 MMSCM (decrease of 2.9% over the corresponding month of the previous year).
- Total imports of LNG (provisional) during the month of April 2023 were 2,213 MMSCM (P) (increase of 6.5% over the corresponding month of the previous year).
- Natural gas available for sale during April 2023 was 4,449 MMSCM (decrease of 2.3% over the corresponding month of the previous year).

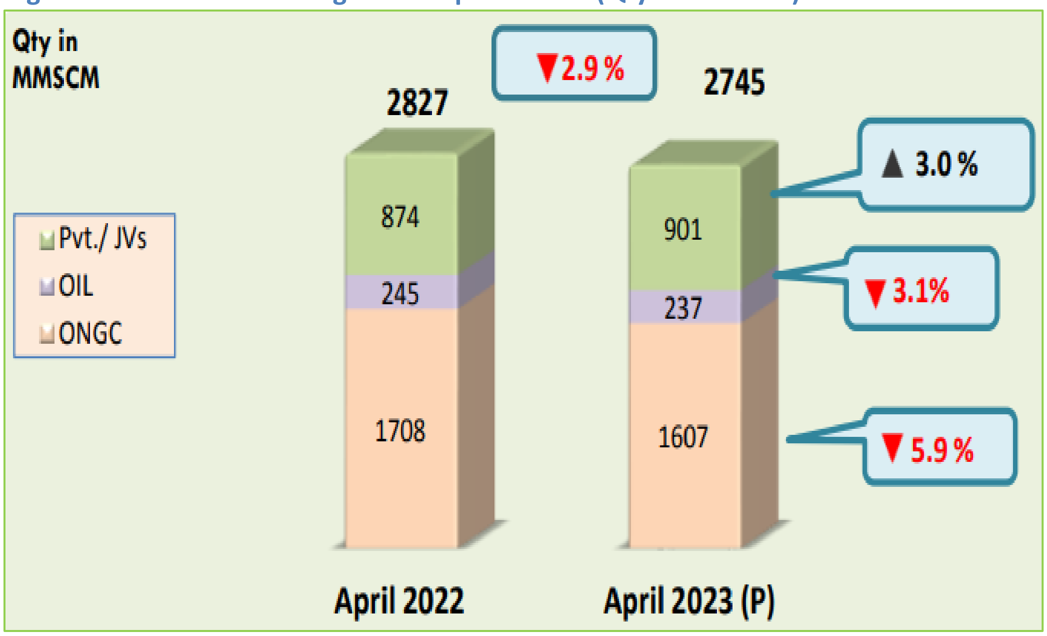
- Total consumption during April 2023 was 5,021 MMSCM (provisional). Major consumers were fertilizer (32%), City Gas Distribution (CGD) (21%), Power (15%), Refinery (7%) and Petrochemicals (5%).

Monthly Report on Natural gas production, imports and consumption – April 2023

1. Domestic Natural Gas Gross Production:

Domestic natural gas gross production for the month of April 2023 was 2,745 MMSCM (decrease of 2.9% over the corresponding month of the previous year).

Figure 7: Domestic natural gas Gross production (Qty in MMSCM)

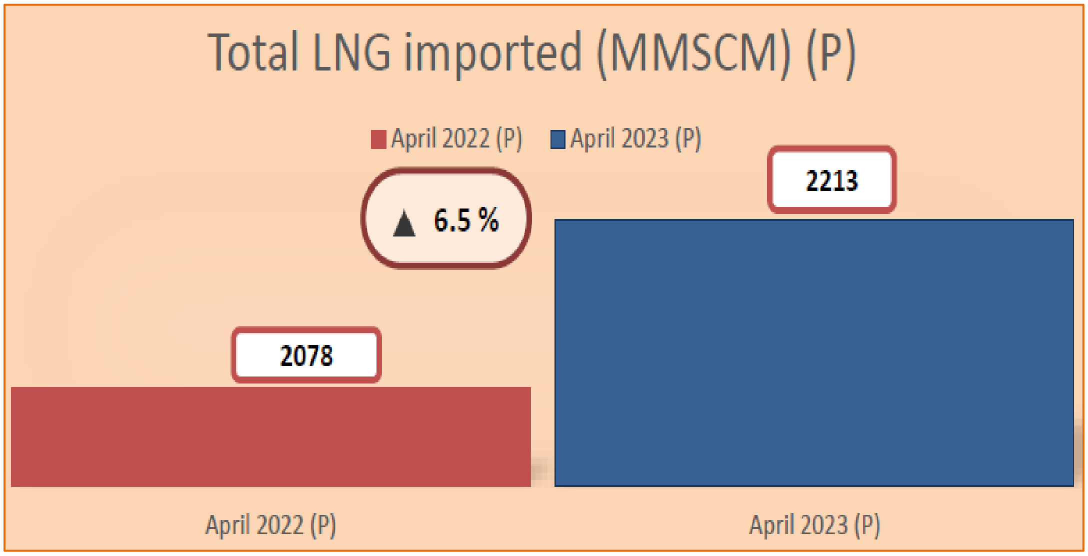


Source: PPAC

2. LNG imports:

Total imports of LNG (provisional) during the month of April 2023 were 2,213 MMSCM (increase of 6.5%) over the corresponding month of the previous year 2,078 MMSCM.

Figure 8: LNG imports (Qty in MMSCM)

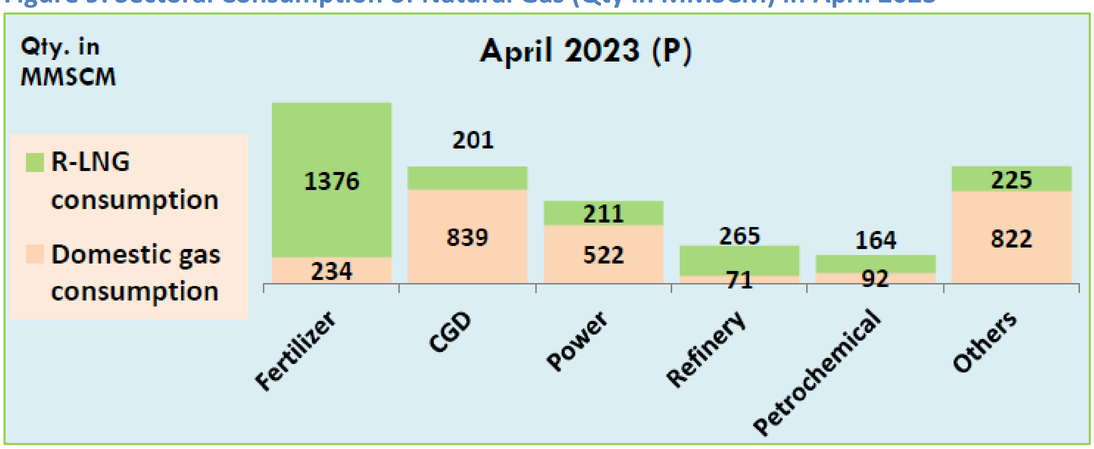


Source: PPAC

3. Sectoral Consumption of Natural Gas:

Major consumers were fertilizer, CGD, power, refinery, petrochemicals among others.

Figure 9: Sectoral Consumption of Natural Gas (Qty in MMSCM) in April 2023



Source: PPAC

Key developments in Oil & Gas sector

- **Monthly Production Report for April, 2023**

1. Production of Crude Oil

Indigenous crude oil and condensate production during April 2023 was registered as 2.4 MMT. OIL registered a production of 0.3 MMT, ONGC registered a production of 1.6 MMT whereas PSC registered production of 0.5 MMT during April 2023.

2. Production of Natural Gas

Gross production of natural gas for the month of April 2023 (P) was 2745 MMSCM which has recovered to 97.1% to the corresponding month of the previous year.

3. Crude Oil Processed (Crude Throughput)

Total Crude oil processed during April 2023 was 21.45 MMT. Where PSU/JV Refiners processed 14.42 MMT and PVT Refiners Processed 7.03 MMT of Crude Oil. Total Indigenous Crude Oil processed was 1.97 MMT and total Imported Crude oil processed was 19.48 by all Indian Refineries (PSU+JV+PVT).

4. Production of Petroleum Products

Production of petroleum products was 22.5 MMT during April 2023, out of which 22.2 MMT was from Refinery production & 0.3 MMT was from Fractionator. Out of total POL production, HSD has a share of 42.1 %, MS 16.1 %, Naphtha 6.1 %, ATF 6.0%, Pet Coke 5.2, % LPG 4.9 %, the major products and rest is shared by Bitumen, FO/LSHS, LDO, Lubes & others.

Key Policy developments in Energy sector

Govt. decreased windfall tax on crude oil

The government has decreased windfall tax on crude oil to Rs 4,100 per tonne from Rs 6,400. The windfall tax on petrol, diesel and aviation turbine fuel will remain unchanged at nil.

India first imposed windfall profit taxes on July 1, joining a growing number of nations that tax super normal profits of energy companies. At that time, export duties of ₹6 per litre ($12 per barrel) each were levied on petrol and ATF and ₹13 a litre ($26 a barrel) on diesel. A ₹23,250 per tonne ($40 per barrel) windfall profit tax on domestic crude production was also levied. The export tax on petrol has since been scrapped. The tax rates are reviewed every fortnight based on average oil prices in the country.

NTPC and NPCIL signed Agreement for joint development of Nuclear Power Plants

NTPC Ltd. signed a Supplementary JV Agreement with Nuclear Power Corporation of India Ltd. for development of Nuclear Power Projects. The agreement was signed by Mr. Ujjwal Kanti Bhattacharya, Director Projects, NTPC Ltd. and Mr. Ranjay Sharan, Director Projects, NPCIL in the presence of Shri R.K. Singh, Minister of Power, New & Renewable Energy, Shri K.N. Vyas, Secretary DAE & Chairman Atomic Energy Commission, Shri Alok Kumar, Secretary, Ministry of Power, Shri Gurdeep Singh, CMD NTPC, Shri B C Pathak, CMD NPCIL and senior officials of Ministry of Power and Department of Atomic Energy.

The JV company shall develop two Pressurized Heavy-Water Reactor (PHWR) projects, Chutka Madhya Pradesh Atomic Power Project 2x700 MW and Mahi Banswara Rajasthan Atomic Power Project 4x700 MW, which were identified as a part of fleet mode nuclear projects.

Ministry of Power & Ministry of Environment, Forests & Climate Change to develop Carbon Credit Trading Scheme for Decarbonization

The government plans to develop the Indian Carbon Market (ICM) where a national framework will be established with an objective to decarbonize the Indian economy by pricing the Green House Gas (GHG) emission through trading of the Carbon Credit Certificates. Bureau of Energy Efficiency, Ministry of Power, along with Ministry of Environment, Forest & Climate Change are developing the Carbon Credit Trading Scheme for this purpose.

India currently has an energy savings-based market mechanism, the new avatar Carbon Credit Trading Scheme will enhance the energy transition efforts with an increased scope that will cover the potential energy sectors in India. For these sectors, GHG emissions intensity benchmark and targets will be developed, which will be aligned with India's emissions trajectory as per climate goals. The trading of carbon credits will take place based on the performance against these sectoral trajectories. Further, it is envisaged that there will be a development of a voluntary mechanism concurrently, to encourage GHG reduction from non-obligated sectors.

"The ICM will enable the creation of a competitive market that can provide incentives to climate actors to adopt low-cost options by attracting technology and finance towards sustainable projects that generate carbon credits. It can be a vehicle for mobilizing a significant portion of investments required by Indian economy to transition toward low-carbon pathways," said Shri Abhay Bakre, DG BEE. He further added that this consultation will give specific guidance for developing MRV process and define eligibility criteria for Accredited Carbon Verifiers (ACVs).

The ICM will develop methodologies for estimation of carbon emissions reductions and removals from various registered projects, and stipulate the required validation, registration, verification, and issuance processes to operationalize the scheme. Monitoring, Reporting, Verification (MRV) guidelines for the emissions scheme will also be developed after consultation. A comprehensive institutional and governance structure will be setup with specific roles of each party involved in the execution of ICM. Capacity building of all entities will be undertaken for up-skilling in the subject matter.

The ICM will mobilize new mitigation opportunities through demand for emission credits by private and public entities. A well-designed, competitive carbon market mechanism would enable the reduction of GHG emissions at the least cost, both at the level of entity, as well as the overall sector and drive faster adoption of clean technologies, in a growing economy like India.

NTPC Green Energy Ltd. (NGEL) and HPCL Mittal Energy Ltd. (HMEL) signed a Memorandum of Understanding (MoU)

NTPC Green Energy Limited (NGEL) and HPCL Mittal Energy Limited (HMEL) signed a Memorandum of Understanding (MoU). The MoU was signed by Shri V. V. Sivakumar, GM (NGEL) and Shri Girish Ghildiyal, GM (HMEL) in the presence of Shri Mohit Bhargava, CEO (NGEL) and Shri Harak Banthia, CFO (HMEL).

The MoU envisages to collaborate in the field of Renewable Energy through sourcing of 250 MW RE-RTC (Round-The-Clock) power to meet the requirement of HMEL and also exploring opportunities in the Green Hydrogen business & its derivatives (Green Ammonia & Green Methanol).

Central Electricity Authority notifies the National Electricity Plan for the period of 2022-32

The Central Electricity Authority (CEA) has notified the National Electricity Plan (NEP) (Vol-I Generation) for the period of 2022-32. The plan document, which was released via e-Gazette, includes the review of the last five years (2017-22), a detailed plan for the next five years (2022-27) and the prospective plan for the next five years (2027-32).

According to the NEP document, the projected All India peak electricity demand and electrical energy requirement is 277.2 GW and 1907.8 BU for the year 2026-27 and 366.4 GW and 2473.8 BU for the year 2031-32 as per 20th Electric Power Survey (EPS) Demand projections. The Energy Requirement & Peak Demand are inclusive of the impact due to increased adoption of Electric Vehicles, Installation of Solar roof tops, Production of Green hydrogen, Saubhagya scheme etc.

Based on generation planning studies carried out under the purview of preparation of National Electricity Plan for the period of 2022-27, the likely Installed Capacity for the year 2026-27 is 609,591 MW comprising of 273,038 MW of Conventional capacity (Coal-235,133MW, Gas–24,824MW, Nuclear-13,080MW) and 336,553 MW of Renewable based Capacity (Large Hydro-52,446 MW, Solar-185,566 MW Wind-72,895 MW, Small Hydro-5,200 MW, Biomass-13,000MW, Pump Storage Plants (PSP projects) -7446MW) along with BESS capacity (Battery Energy Storage System) of 8,680MW/34,720 MWh.

The likely Installed Capacity for the year 2031-32 is estimated to be 900,422 MW comprising of 304,147 MW of Conventional capacity (Coal-259,643 MW, Gas–24,824MW, Nuclear-19,680MW) and 596,275MW of Renewable based Capacity (Large Hydro-62,178 MW, Solar-364,566MW, Wind-121,895MW, Small Hydro-5450MW, Biomass-15,500 MW, PSP-26,686MW; excluding 5856 MW of likely Hydro based Imports) along with BESS capacity of 47,244MW/236,220MWh.

The projection of total capacity addition is in line with the target of the country to achieve a non-fossil based installed capacity of around 500 GW by the year 2029-30.

NEP envisages that the share of non-fossil based capacity is likely to increase to 57.4% by the end of 2026-27 and may likely to further increase to 68.4% by the end of 2031-32 from around 42.5% as on April’2023.

The average PLF of the total Installed coal capacity of 235.1 GW is likely to be about 58.4% in 2026-27and that of 259.6 GW of coal-based capacity is likely to be about 58.7 % in 2031-32.

As per the National Electricity Plan projections, the energy storage capacity of 16.13 GW/82.37 GWh with PSP based storage of 7.45GW capacity and 47.65 GWh storage and BESS based storage of 8.68 GW/ 34.72 GWh is required by the year 2026-27. The storage capacity requirement increases to 73.93 GW (26.69 GW PSP and 47.24 GW BESS) with storage of 411.4 GWh (175.18 GWh from PSP and 236.22 GWh from BESS) by the year 2031-32.

MNRE announced major reforms in the Approved List of Models and Manufactures (ALMM) for Solar Photovoltaic Modules

The Ministry of New & Renewable Energy (MNRE) has come up with a number of reforms in its ALMM mechanism for Solar Photovoltaic Modules. The reforms are primarily aimed at reducing cost to solar PV manufactures, time between application to enlistment as well as compliance burden and increasing ease of doing business in the whole ALMM process.

The major reforms include:

1. Reduction in application fee by 80%.
2. Substantial reduction in inspection fee, with reduction in certain cases being as high as 70%.
3. Exemption from factory inspection in case of enlistment of additional models in ALMM which are similar to those already enlisted by the applicant, but having lower wattage.
4. Allowing the manufacturers to withdraw their applications prior to factory inspection, with refund of 90% of application fee.
5. Increase in ALMM enlistment validity from 2 years to 4 years.
6. Grant of provisional enlistment in ALMM within 7 days of receipt of BIS registration and time-limit of two months for factory enlistment and final enlistment, failing which deemed enlistment.
7. All future ALMM application to be accompanied by scanned copy of applications and processing of ALMM applications will start without waiting for the submission of hard copies, which can be submitted subsequently.
8. Introduction of following end-use category-wise minimum module efficiency thresholds for enlistment in ALMM:
    - Utility/ Grid Scale Power Plants: 20.00%
    - Rooftop and Solar Pumping: 19.50%
    - Solar Lighting: 19.00%

Commenting on the changes, Shri B. S. Bhalla, Secretary, MNRE said that the changes in the ALMM for Photovoltaic Modules, would enhance the ease of doing business and help in ramping up the domestic production of solar photovoltaic modules for catering to the current and the future demand.

Ministry of Power gives complete waiver of ISTS charges for 25 years to projects commissioned on or before 31st Dec, 2032

In a major decision, the Government has decided to grant waiver of ISTS charges to Off-Shore Wind Projects and extend the waiver to Green Hydrogen/Green Ammonia. This decision has been taken to facilitate wider execution of offshore wind energy initiatives, to promote the expansion of Green Hydrogen / Green Ammonia Projects and to encourage the offtake of renewable energy from Energy Storage System Projects.

As per the notification issued by Ministry of Power, a complete waiver of ISTS charges (Inter-State Transmission Charges) has been given for off-shore wind power projects commissioned on or before 31st December, 2032 for a period of 25 years from the date of commissioning of the Project. The off-shore projects commissioned from 1st January, 2033 would be given graded ISTS charges. Earlier, all wind energy projects were provided waiver up to 30.06.2025. Now, offshore wind would be treated separately, and waiver to these would granted up to 31st Dec, 2032 with graded transmission charges thereafter.

S. No.	Period of Commissioning of Offshore Wind Power Projects	Applicable ISTS Charges
1	01.01.2033 to 31.12.2033	25% of the applicable ISTS charges
2	01.01.2034 to 31.12.2034	50% of the applicable ISTS charges
3	01.01.2035 to 31.12.2035	75% of the applicable ISTS charges
4	From 01.01.2036	100% of the applicable ISTS charges

The government has also granted complete waiver of ISTS charges for a period of 25 years from the date of commissioning of the project, for Green Hydrogen/Green Ammonia production units, using Renewable Energy (commissioned after 8th March 2019), Pumped Storage System or Battery Storage Systems or any hybrid combination of these technologies. The projects commissioned on or before 31st December, 2030 shall be eligible for this waiver. The projects after 31st December, 2030 will attract graded transmission charges thereafter. The decision effectively extends the applicability of waiver date from 30 June 2025 to 31 Dec 2030.

S. No.	Period of Commissioning of Green Hydrogen/ Green Ammonia Plants	Applicable ISTS Charges
1	01.01.2031 to 31.12.2031	25% of the applicable ISTS charges
2	01.01.2032 to 31.12.2032	50% of the applicable ISTS charges
3	01.01.2033 to 31.12.2033	75% of the applicable ISTS charges
4	From 01.01.2034	100% of the applicable ISTS charges

To promote development of Pump Storage Plants (PSP), the criteria for availing the complete waiver of ISTS charges for PSP projects has now been linked to the date of award of the project rather than commissioning of the project. This shall be applicable in cases where construction work is awarded on or before 30th June, 2025.

The ISTS charges on drawl of energy from energy storage projects, which was earlier granted to the project, will henceforth be available for each individual user of such project. The individual user will get this benefit, if at least 51% of the energy utilized by the user for charging the storage system is renewable energy. Earlier the limit of 51% was at project level. This change has been proposed in view of the fact that in future the capacity of such storage projects will be shared by many discoms / other users and only some of them may meet this criteria of 51% individually while the same may not be met in an aggregate manner at storage project level.

Moreover, in case a project is eligible for waiver of transmission charges based on its original COD (Date of Commissioning), the same benefit will continue to be made available if COD is extended by competent authority. This is considered necessary to give confidence to the investors who are taking investment decisions based on the present circumstances but their COD may extend beyond the relevant applicable date for transmission charge waiver for reasons beyond their control.

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