FIPI

Federation of Indian Petroleum Industry

POLICY & ECONOMIC REPORT

OIL & GAS MARKET

December 2025

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Executive Summary

2025 has been a year of steep ups and downs for the global economy—at least where growth forecasts have been concerned. According to World Bank estimates, global growth is projected at 2.7 percent—broadly in line with expectations at the start of the year.

In 2025, the United States experienced the largest swing in growth expectations among the major economies, with forecasts falling from 2.2 percent in January to 1.2 percent in May before recovering to 2.0 percent by November. This rebound reflected strong AI-related investment, lower interest rates, continued fiscal support, and modest tariff pass-through.

Across other advanced economies, projected growth has returned to 1.4 percent—up from 1.0 percent in May and close to January levels—with the euro area benefiting from easing inflation, declining interest rates, and targeted fiscal measures. Growth prospects for EMDEs excluding China have remained stable at around 3.5 percent, while expectations for China have improved as policy support helped offset weakness in the real-estate sector.

In case of India, as per the latest data released by NSO, the real GDP of India, adjusted for inflation, is estimated to grow by 8.2% in Q2 of FY 2025-26 against the growth rate of 5.6% during Q2 of FY 2024-25. The GDP in Q1 of FY 2025-26 grew at 7.8% against the growth rate of 6.5% during Q1 of FY 2024-25. Nominal GDP has witnessed a growth rate of 8.7% in Q2 of FY 2025-26.

The surge is supported by resilient domestic demand, moderating inflation, and higher labor force participation. A revival in domestic investment and strong investor sentiment signals a stable and broad-based economy. As reforms gather pace and consumption remains optimistic, India's economic outlook continues to upbeat, signaling sustained momentum and growth across sectors.

Primary sector experienced the year-on-year Real GVA growth rate of 3.1% in Q2 FY 2025-26. Similarly, the Secondary (8.1%) and Tertiary Sector (9.2%) have boosted the Real GDP growth rate in Q2 of FY 2025-26.

IIP measures growth in manufacturing, mining, and electricity, reflecting the strength of industrial activity. India's IIP registered a robust growth of 4.0 % year on year in September 2025, driven primarily by a 4.8 % expansion in the manufacturing sector. A rising IIP signals robust production, higher employment, and stronger investment momentum, reinforcing the economy's overall growth trajectory.

Headline inflation-: Year-on-year inflation rate based on All India Consumer Price Index (CPI) for the month of November, 2025 over November, 2024 is 0.71% (Provisional). There is increase of 46 basis points in headline inflation of November, 2025 in comparison to October, 2025**.**

Year-on-year inflation rate based on All India Consumer Food Price Index (CFPI) for the month of November, 2025 over November, 2024 is - 3.91% (Provisional). Corresponding inflation rates for rural and urban are – 4.05% and -3.60%, respectively. All India inflation rates for CPI (General) and CFPI over the last 13 months are shown below. An increase of 111 basis points is observed in food inflation in November, 2025 in comparison to October, 2025.

The Reserve Bank of India (RBI) cut the repo rate by 25bp to 5.25% and announced liquidity measures, including open market bond purchases and FX swaps. The RBI announced open market purchases of government securities worth INR 1 trillion this month and USD/INR buy-sell swap auctions totalling USD 5 billion to inject liquidity into the system.

India's private sector business activity showed robust growth in December, although the pace slightly slowed from November. The HSBC India Composite PMI fell to 58.9 from 59.7, marking the softest output growth since February. Both manufacturing and services sectors experienced this slowdown, primarily due to a softer rise in new orders, though demand remained strong.

On the external front, India's forex reserves were up by $4.36 billion to $693.32 billion for the week ending December 19, according to data released by the Reserve Bank of India (RBI). Further, India's total exports (Merchandise and Services combined) for November 2025 is estimated at US$ 73.99 Billion, registering a growth of 15.52 percent vis-à-vis November 2024. Total imports (Merchandise and Services combined) for November 2025 are estimated at US$ 80.63 Billion, registering a negative growth of (-) 0.60 percent vis-à-vis November 2024.

As far as oil and gas industry is concerned, the apparent disconnect between the current global oil surplus on the one hand and inventories near decade lows at key pricing hubs on the other. Indeed, despite record volumes of oil piling up on water, benchmark crude oil prices eased only marginally in November, with North Sea Dated last trading at around $63/bbl and WTI at $59/bbl, with lower forward disincentivizing storage. Still, the market mb/d Demand/Supply Balance trends have clearly been affecting prices over time, with ICE Brent down by nearly $20/bbl since January.

Hedge funds and other money managers maintained a broadly bearish stance toward crude oil prices in November, reinforcing downward pressure on the futures complex. Between the weeks of 28 October and 25 November, speculative participants sold the equivalent of around 51 mb, reflecting a continued retreat from bullish positions. Net long positions in ICE Brent futures and options declined as short positions rose to near-record levels, amplifying bearish sentiment and heightening market volatility. The build-up in short exposure came alongside continued liquidation of bullish positions following the previous month's selloff.

Crude spot prices averaged lower in November. Selling pressure in futures markets, along with efforts by refiners and traders to keep oil stocks low to avoid high value-based inventory taxes at the end of the year, weighed on spot prices. High freight rates for main routes also weighed down on spot prices. These factors were partially offset by positive developments that limited the decline in prices, including higher global refinery intake in November and stronger refining margins across all major trading hubs. Signs of renewed demand in the spot market, as well as concerns about the supply of sour crude due to additional supply restrictions in Eastern Europe, helped to support prices.

Natural Gas spot prices at the US Henry Hub benchmark averaged $3.79 per million British thermal units (MMBtu) in November 2025. Henry Hub's natural gas prices rose for a third consecutive month, increasing by 18.8%, m-o-m, in November. Prices continued to advance, supported by a combination of the shift into the US heating season and higher LNG demand, particularly from the EU, as it looks to replenish its inventories. However, reports of higher storage levels limited gains. According to data from the US Energy Information Administration (EIA), average weekly natural gas storage increased by 4.0%, m-o-m, in November. Prices were up by ~78%, y-o-y.

Economy in Focus

1. A snapshot of the global economy

Global economic growth

2025 has been a year of steep ups and downs for the global economy—at least where growth forecasts have been concerned. According to World Bank estimates, global growth is projected at 2.7 percent—broadly in line with expectations at the start of the year.

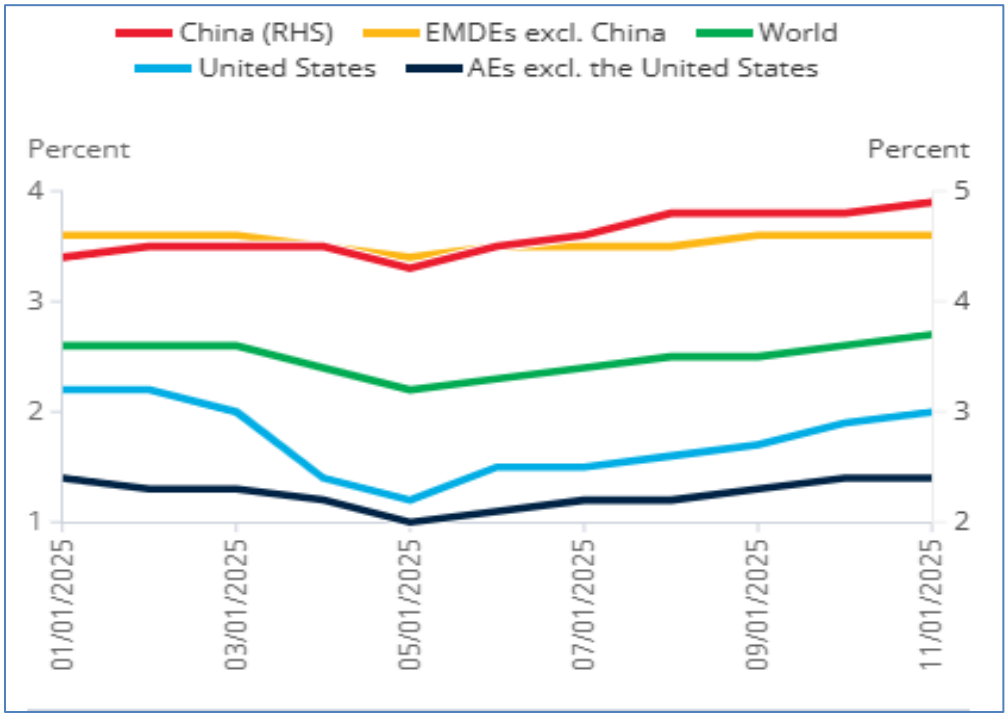
In 2025, the United States experienced the largest swing in growth expectations among the major economies, with forecasts falling from 2.2 percent in January to 1.2 percent in May before recovering to 2.0 percent by November. This rebound reflected strong AI-related investment, lower interest rates, continued fiscal support, and modest tariff pass-through.

Across other advanced economies, projected growth has returned to 1.4 percent—up from 1.0 percent in May and close to January levels—with the euro area benefiting from easing inflation, declining interest rates, and targeted fiscal measures.

Growth prospects for EMDEs excluding China have remained stable at around 3.5 percent, while expectations for China have improved as policy support helped offset weakness in the real-estate sector.

The revision to U.S. growth forecasts since May remains the largest single driver of the global upgrade, accounting for 37 percent of the improvement in global prospects. Upgrades for other advanced economies explain 32 percent, while China's improved growth outlook contributes 23 percent.

Figure 1: Monthly growth forecast for 2025

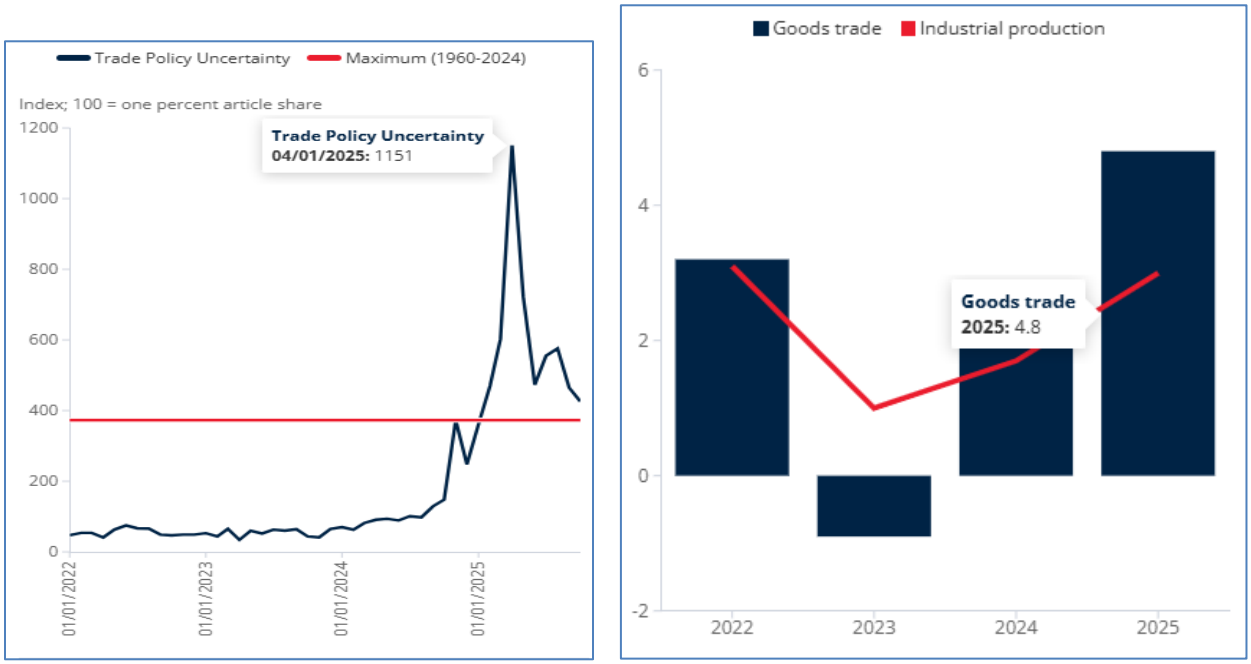


Source- World Bank

Global Trade

Trade developments have played a central role in shaping global growth expectations this year. Despite the sharp rise in trade restrictions, the pace of new measures has eased in recent months. Global trade-policy uncertainty, which surged to a peak in April, has since receded to levels comparable to those seen at the start of the year. This moderation, combined with progress on bilateral and regional trade negotiations, has helped stabilize business sentiment and reduce fears of a severe trade contraction.

Figure 2: Trade policy uncertainty & Global goods trade and industrial production growth



Source- World Bank

Global goods trade expanded at an average monthly rate of 4.8 percent through September 2025, accelerating from 2.5 percent in 2024. The resilience partly reflects front-loading of shipments ahead of tariff implementation, as well as firms' ability to adapt supply chains and absorb some tariff-related costs. Services trade, particularly in information and business services, has also remained robust. For EMDEs, which now account for nearly 40 percent of global trade, deeper regional integration and new trade agreements have further supported economic activity.

Global PMI

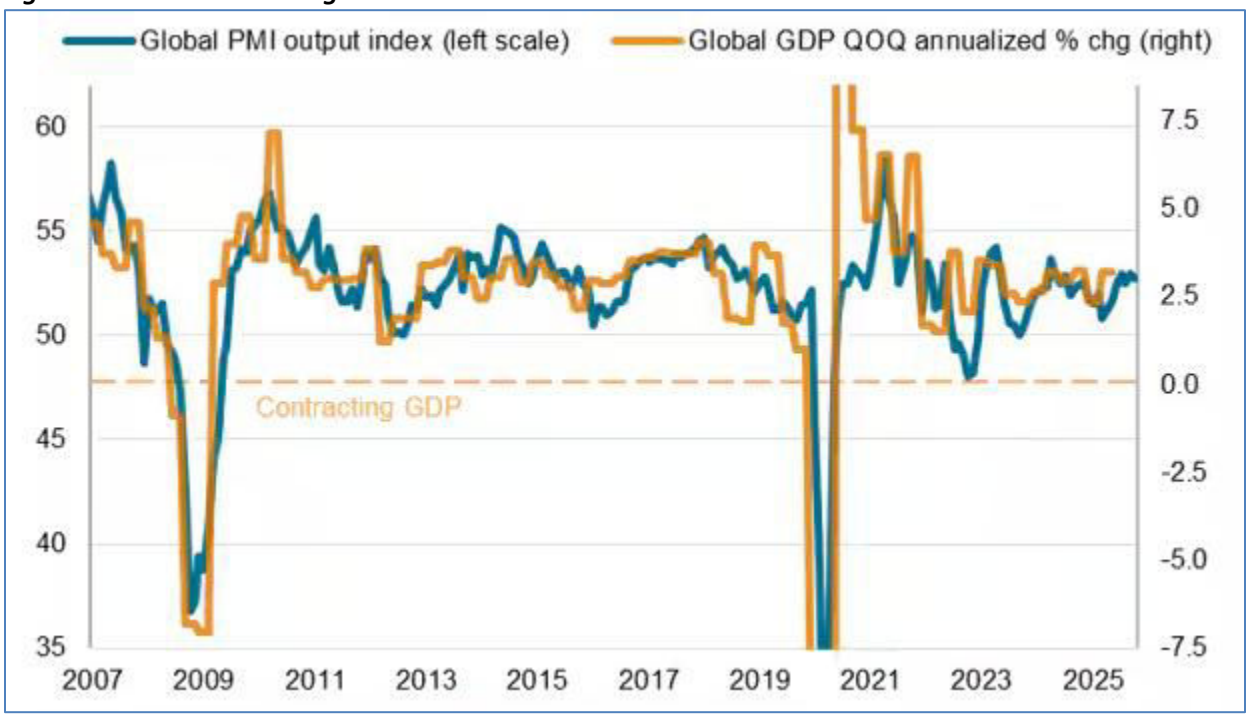
The J.P.Morgan Global PMI Composite Output Index - produced by S&P Global -posted 52.7 in November, down from 53.0 in October. This indicated another month of solid output growth with the latest reading being the third-strongest in the past 15 months.

The latest expansion in global business activity was broad-based, with both manufacturers and services providers reporting continued growth in new business and output, albeit at slower rates compared with October.

By sector, growth was driven by another solid expansion in financial services activity, but sectors including healthcare and consumer services also saw improvements that helped to support the upturn and manufacturing continued to expand at a modest pace.

By region, rates of growth softened for both developed and emerging markets, led by the US and India respectively. That said, developed markets continued to record a solid rise in output as compared to a more modest expansion for emerging markets.

Figure 3: Global economic growth & PMI



Source- S&P Global

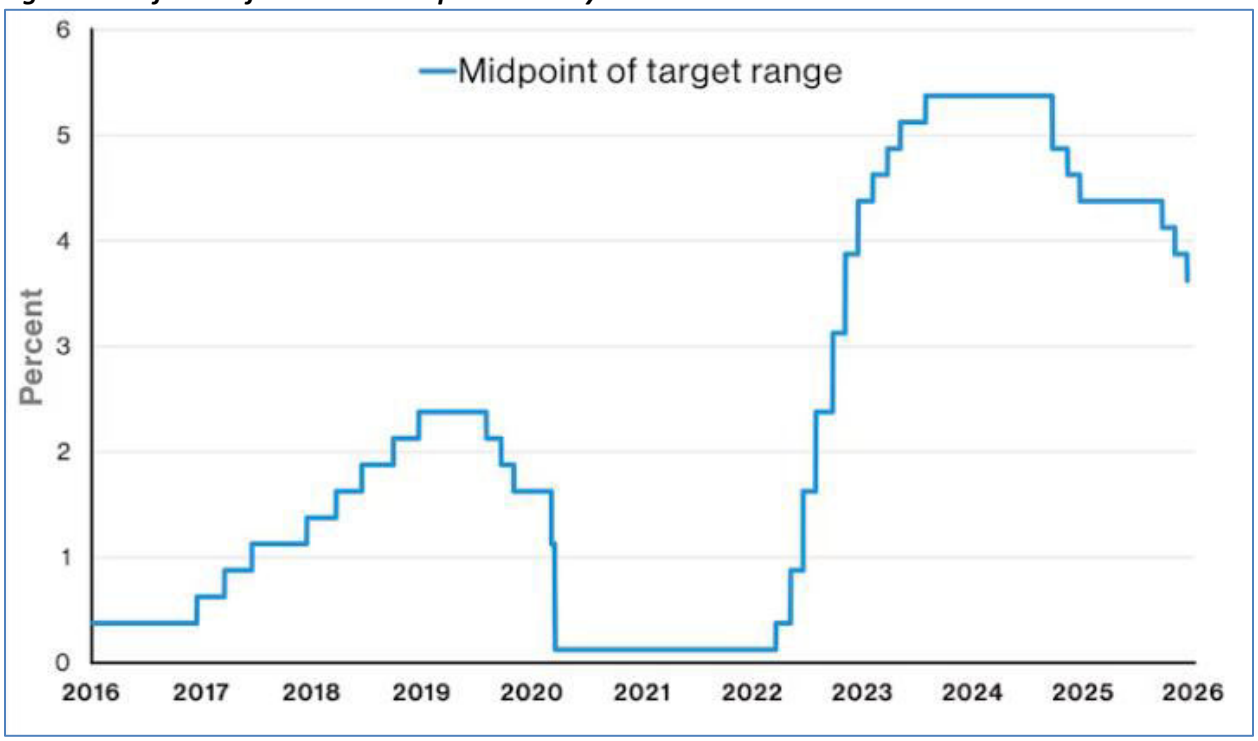
2. Federal Reserve cuts interest rates 0.25% and increases growth projections for 2026

The Federal Reserve (Fed) lowered its target federal funds interest rate by 0.25%, setting the new range at 3.50%-3.75%, its lowest level in three years. The figure marks a significant drop from a recent peak attained in 2023, but borrowing costs remain well above a 0% rate established at the outset of the COVID-19 pandemic.

Economic growth and inflation forecasts for 2026 improved, supporting a constructive market outlook. The Fed previously cut rates 1% in 2024's second half and 0.75% in 2025's second half.

The unemployment rate ticked up from 4.3% to 4.4% in September, US Labor Department figures showed in a delayed report released last month. Cutting interest rates is aimed at stimulating the job market by creating lower borrowing costs for businesses.

Figure 4: US federal funds rate over previous 10 years



Source- Fed Reserve Bank

3. Recent US tariff cuts offer some relief for Developing Asia

The United States (US) has eased its tariff policy further since September. Following a sharp increase since February and a spike in April, US tariffs settled at historically high levels in August and September. Trade deals and further adjustments brought the US effective tariff down to 15% by mid-November, from 17% in September.

Notably, the "Fentanyl-related" tariff on the People's Republic of China (PRC) was cut from 20% to 10% on 10 November. This lowered the effective tariff applied on imports from the PRC from 49% to 39%, though it remains about 18 percentage points higher than at the end of 2024.

The trade deal with the Republic of Korea, formalized on 13 November, cut the automobile tariff from 25% to 15%, aligning it with the tariff applied on automobile imports from the European Union and Japan. Finally, the US rolled back tariffs on 237 food products on 14 November.

While these new exemptions have slashed effective tariffs for Papua New Guinea, Samoa, and Timor-Leste, the effect for developing Asia will be marginal as these products account for less than 2% of the region's exports to the US. Even after these adjustments, US effective tariffs on developing Asia remain at 27%, well above the 15% on the rest of the world and still up by 17 percentage points compared to the end of 2024.

Recent bilateral deals involve significant concessions to the US. In October, Cambodia, Malaysia, Thailand, and Viet Nam all pledged to address non-tariff barriers and strengthen intellectual property standards, as well as labor and environmental standards.

Thailand and Viet Nam committed to purchasing more US commodities, while Malaysia agreed to provide preferential market access for certain US agricultural goods. Cambodia and Thailand also agreed to eliminate digital services taxes on US firms, and Viet Nam is finalizing commitments on digital trade facilitation.

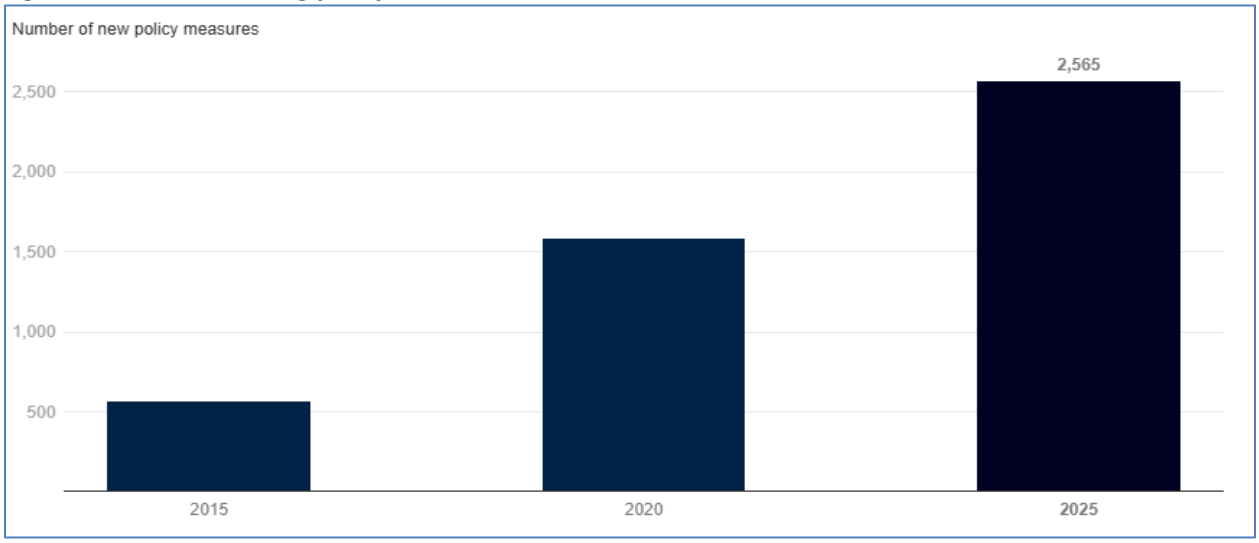
The PRC suspended some retaliatory measures, notably export controls on rare earths and critical minerals, and it committed to purchase more US agricultural goods, including sorghum and soybeans, and ramp up efforts to curb fentanyl flows. While some of these measures are not finalized, they highlight a widening of concessions obtained by the US.

4. Global trade has proved resilient amid rising protectionism and geopolitical tension- World Bank

A decade-long accumulation of restrictions has been supercharged by sharp tariff hikes and retaliatory measures among major economies in recent months. As a result, both tariffs and uncertainty remain far above historical norms. According to Global Trade Alert, the number of new trade restrictions reached record highs during 2023–25, reversing decades of gradual liberalisation.

In the first ten months of 2025 alone, more than 2,500 trade restrictions were imposed worldwide — almost five times as many as during the same period in 2015. Although some of these measures have since been rolled back and new negotiations are underway, businesses continue to navigate marked by heightened policy uncertainty, stretched supply chains, and the threat of additional barriers. Global trade policy uncertainty so far in the 2020s has averaged nearly five times the level of the 2000s.

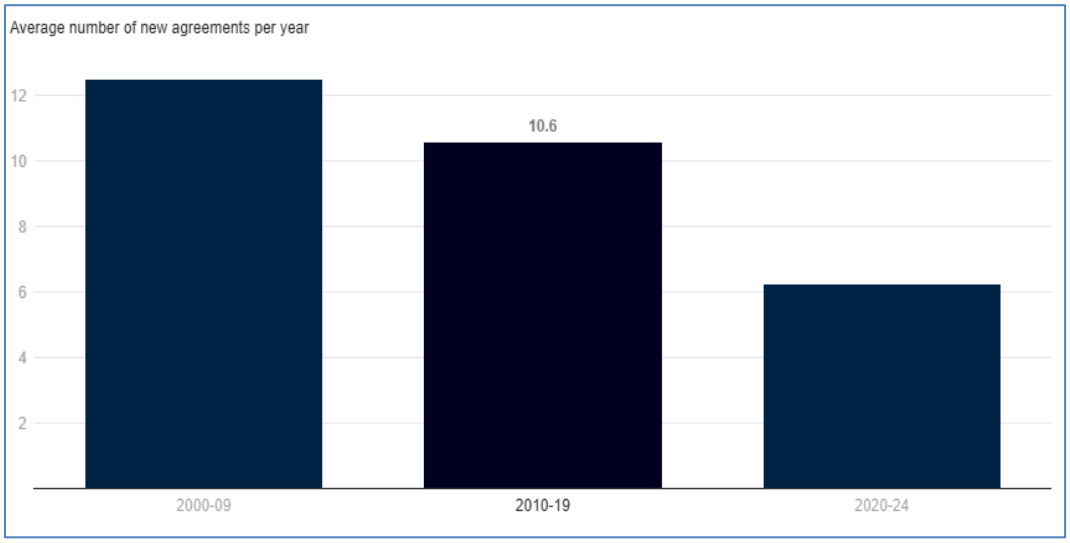
Figure 5: Trade-distorting policy measures



Source- World Bank

The multilateral trading system itself is under severe strain. The World Trade Organization's dispute-settlement mechanism remains paralyzed, and progress toward broader reform has slowed. The appetite for deep trade agreements has withered: only about six agreements per year have been signed in the 2020–24 period, less than half the pace of the 2000s, while the appetite for restrictions appears insatiable.

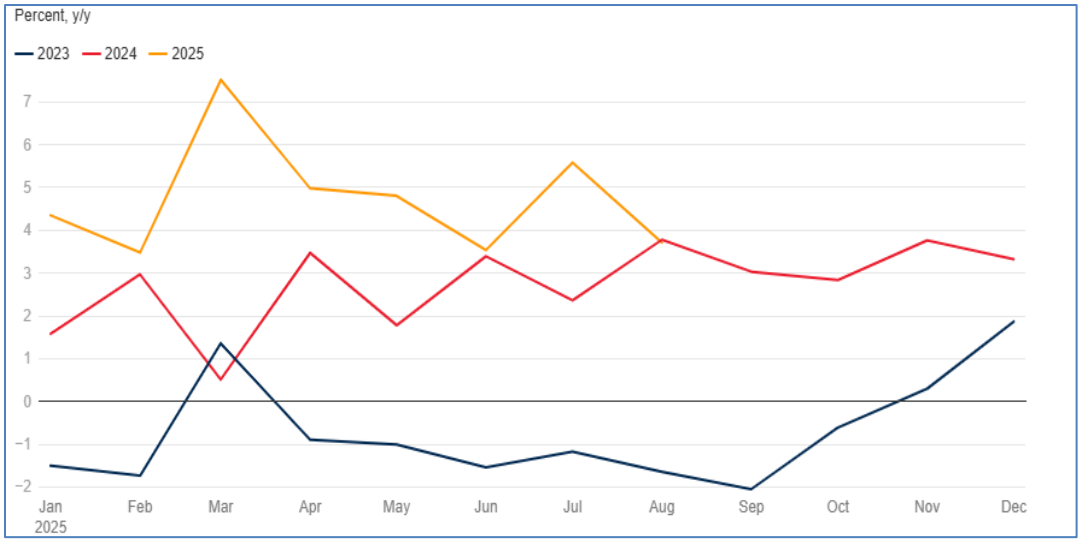
Figure 6: Trade agreements



Source- World Bank

Nevertheless, global trade has shown surprising resilience this year. In 2025, global goods trade volumes expanded at an average monthly rate of 4.7% through August, a notable acceleration from 2.7% in 2024 and a sharp rebound from a 0.7% contraction in 2023. Goods trade has avoided the sharp contraction that many had feared earlier in the year.

Figure 7: Goods trade growth



Source- World Bank

Firms have adapted supply chains to take advantage of existing trade preferences and have built up inventories to manage uncertainty, limiting the pass-through of higher costs to consumers. Services trade — largely insulated from the latest increases in trade costs — has also remained robust, particularly in business and information services.

5. Indian Economy

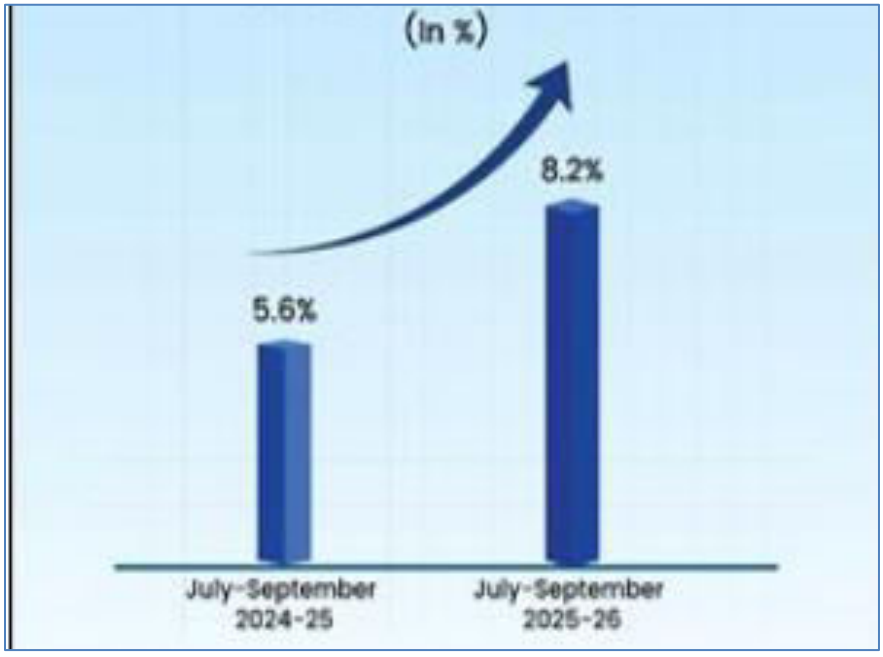
India's economic growth

As per the latest data released by NSO, the real GDP of India, adjusted for inflation, is estimated to grow by 8.2% in Q2 of FY 2025-26 against the growth rate of 5.6% during Q2 of FY 2024-25. The GDP in Q1 of FY 2025-26 grew at 7.8% against the growth rate of 6.5% during Q1 of FY 2024-25. Nominal GDP has witnessed a growth rate of 8.7% in Q2 of FY 2025-26.

The surge is supported by resilient domestic demand, moderating inflation, and higher labor force participation. A revival in domestic investment and strong investor sentiment signals a stable and broad-based economy. As reforms gather pace and consumption remains optimistic, India's economic outlook continues to upbeat, signaling sustained momentum and growth across sectors.

Primary sector experienced the year-on-year Real GVA growth rate of 3.1% in Q2 FY 2025-26. Similarly, the Secondary (8.1%) and Tertiary Sector (9.2%) have boosted the Real GDP growth rate in Q2 of FY 2025-26.

Figure 8: India's GDP growth



Source- NSO

Index of Industrial Production (IIP)

IIP measures growth in manufacturing, mining, and electricity, reflecting the strength of industrial activity. India's IIP registered a robust growth of 4.0 % year on year in September 2025, driven primarily by a 4.8 % expansion in the manufacturing sector. A rising IIP signals robust production, higher employment, and stronger investment momentum, reinforcing the economy's overall growth trajectory.

Top three positive contributors responsible for the strong performance are from the manufacturing sector. The performance underlines the strength of India's industrial base and its capacity to contribute meaningfully to the broader growth agenda.

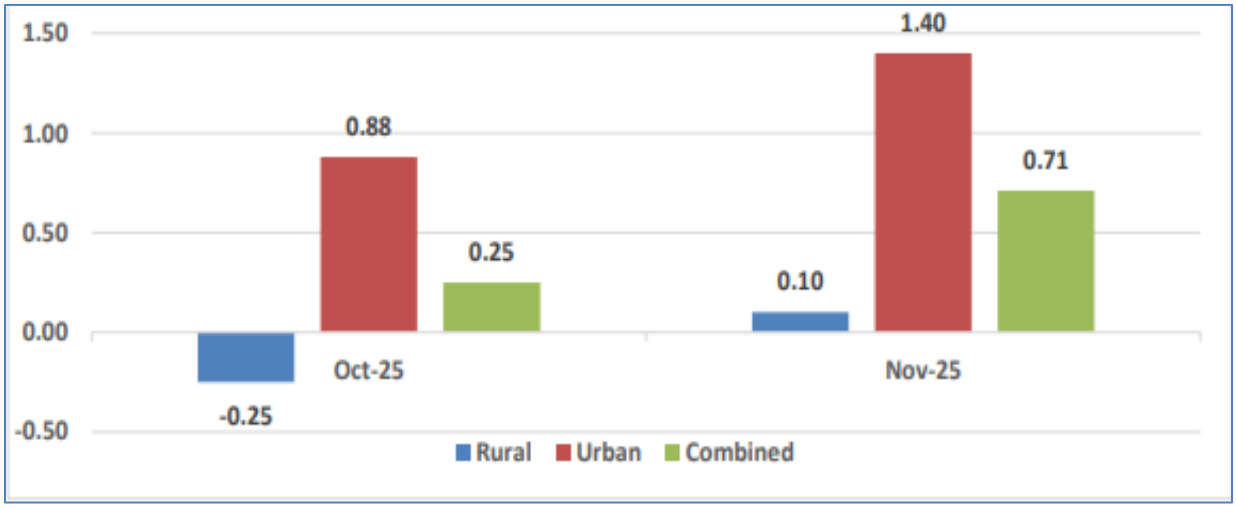
- Manufacture of Basic Metals (growth of 12.3 %),
- Manufacture of Electrical Equipment (growth of 28.7 %), and
- Manufacture of motor vehicles, trailers, and semi-trailers (14.6%)

From a use-based classification perspective, several categories posted commendable growth. The top three contributors are: Infrastructure & Construction Goods expanded by 10.5 %, Consumer Durables by 10.2 %, and Intermediate Goods by 5.3 % in September 2025. Such diversified growth across primary goods, capital goods, intermediate goods, and consumer durables segments signal both strong investment activity and resilient consumption demand. In combination with manufacturing gains, these patterns reflect a well-balanced industrial upturn that strengthens the foundation for sustained, inclusive economic expansion.

Inflation in India

- Headline inflation-: Year-on-year inflation rate based on All India Consumer Price Index (CPI) for the month of November, 2025 over November, 2024 is 0.71% (Provisional). There is increase of 46 basis points in headline inflation of November, 2025 in comparison to October, 2025**.**

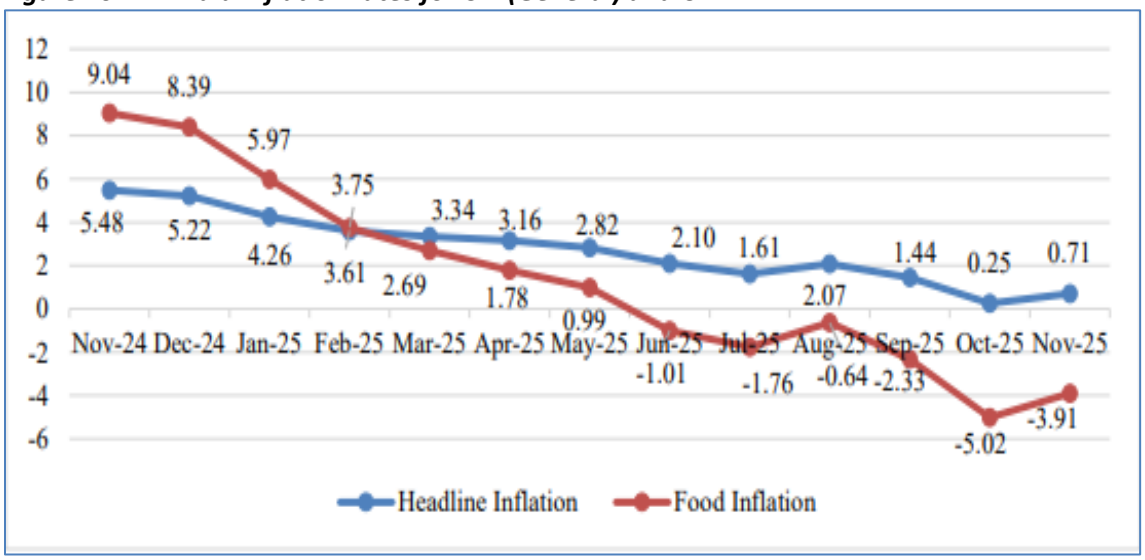
Figure 9: Year on year inflation rate based on CPI



Source- NSO

Food Inflation: Year-on-year inflation rate based on All India Consumer Food Price Index (CFPI) for the month of November, 2025 over November, 2024 is - 3.91% (Provisional). Corresponding inflation rates for rural and urban are – 4.05% and -3.60%, respectively. All India inflation rates for CPI (General) and CFPI over the last 13 months are shown below. An increase of 111 basis points is observed in food inflation in November, 2025 in comparison to October, 2025.

Figure 10: All India inflation rates for CPI (General) and CFPI



Source- NSO

- The increase in headline inflation and food inflation during the month of November, 2025 is mainly attributed to increase in inflation of Vegetables, Egg, Meat and fish, Spices and Fuel and light.
- **Rural Inflation:** An increase in headline and food inflation in rural sector observed in November, 2025. The headline inflation is 0.10% (Provisional) in November, 2025 while it was -0.25% in October, 2025. The CFPI based food inflation in rural sector is observed as -4.05% (Provisional) in November, 2025 in comparison to -4.85% in October, 2025.
- **Urban Inflation:** An increase from 0.88% in October, 2025 to 1.40% (Provisional) in November, 2025 is observed in headline inflation of urban sector. Increase is also observed in food inflation from -5.18% in October, 2025 to -3.60% (Provisional) in November, 2025.
- **Housing Inflation:** Year-on-year Housing inflation rate for the month of November, 2025 is 2.95% (Provisional). Corresponding inflation rate for the month of October, 2025 was 2.96%. The housing index is compiled for urban sector only.
- **Education Inflation:** Year-on-year Education inflation rate for the month of November, 2025 is 3.38% (Provisional). Corresponding inflation rate for the month of October, 2025 was 3.54%. It is combined education inflation for both rural and urban sector.
- **Health Inflation:** Year-on-year Health inflation rate for the month of November, 2025 is 3.60% (Provisional). Corresponding inflation rate for the month of October, 2025 was 3.81%. It is combined health inflation for both rural and urban sector.

- **Transport & Communication:** Year-on-year Transport & communication inflation rate for the month of November, 2025 is 0.88% (Provisional). Corresponding inflation rate for the month of October, 2025 was 0.94%. It is combined inflation rate for both rural and urban sector.
- **Fuel & light:** Year-on-year Fuel & light inflation rate for the month of November, 2025 is 2.32% (Provisional). Corresponding inflation rate for the month of October, 2025 was 1.98%. It is combined inflation rate for both rural and urban sector.

Monetary stance on inflation

The Reserve Bank of India (RBI) cut the repo rate by 25bp to 5.25% and announced liquidity measures, including open market bond purchases and FX swaps. The RBI announced open market purchases of government securities worth INR 1 trillion this month and USD/INR buy-sell swap auctions totalling USD 5 billion to inject liquidity into the system.

The RBI maintained a neutral policy stance, noting that CPI inflation has eased significantly, remaining below the lower bound of its target range. While inflation is expected to pick up, it should stay under 4% – the RBI's baseline inflation target – for the first half of next year.

Manufacturing PMI – India

- India's private sector business activity showed robust growth in December, although the pace slightly slowed from November. The HSBC India Composite PMI fell to 58.9 from 59.7, marking the softest output growth since February.
- Both manufacturing and services sectors experienced this slowdown, primarily due to a softer rise in new orders, though demand remained strong. Business confidence dipped, but companies remain optimistic about future growth.
- A reading above 50 indicates economic expansion, while one below 50 shows contraction in the manufacturing, services, or construction sectors. A reading of exactly 50 signifies no change.

India's external position

India's forex reserves

- India's forex reserves were up by $4.36 billion to $693.32 billion for the week ending December 19, according to data released by the Reserve Bank of India (RBI).
- For the week ended December 19, foreign currency assets, a major component of the reserves, increased by $1.64 billion to $559.42 billion.
- Value of the gold reserves increased by $2.62 billion to $110.36 billion during the week.
- The Special Drawing Rights (SDRs) were up by $8 million to $ 18.74 billion.
- India's reserve position with the IMF was up by $95 million to $4.78 billion in the week, according to the RBI data.

India's foreign trade position

- India's total exports (Merchandise and Services combined) for November 2025 is estimated at US$ 73.99 Billion, registering a growth of 15.52 percent vis-à-vis November 2024.

- Total imports (Merchandise and Services combined) for November 2025 are estimated at US$ 80.63 Billion, registering a negative growth of (-) 0.60 percent vis-à-vis November 2024.

Table 1: Trade during November 2025

		November 2025 (USD Billion)	November 2024 (USD Billion)
Merchandise	Exports	38.13	31.94
	Imports	62.66	63.87
Services	Exports	35.86	32.11
	Imports	17.96	17.25
Total Trade (Merchandise + Services)	Exports	73.99	64.05
	Imports	80.63	81.11
	Trade Balance	**-6.64**	**-17.06**

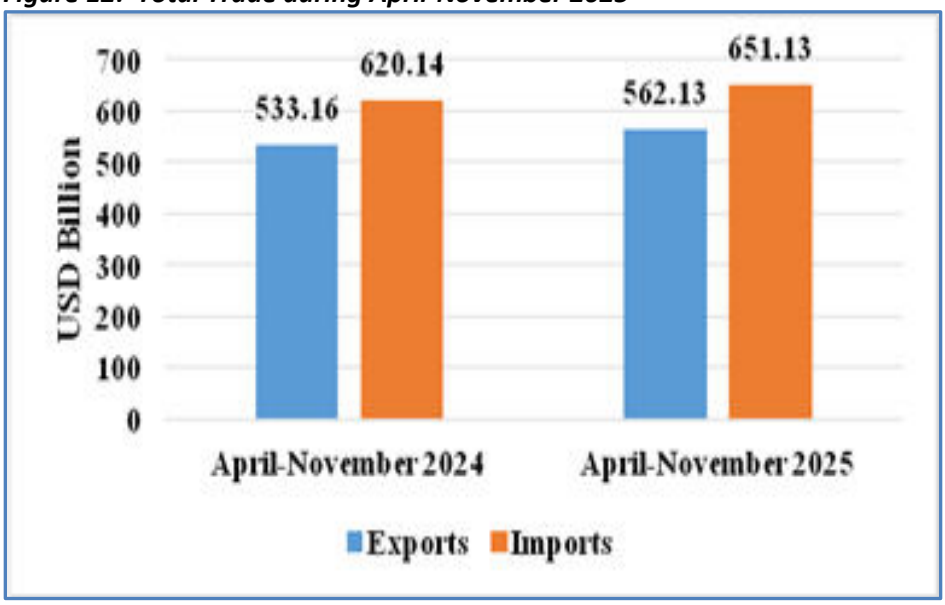
Source- Ministry of Commerce & Industry

Figure 11: Total Trade during November 2025

Source- Ministry of Commerce & Industry

India's total exports during April-November 2025 are estimated at US$ 562.13 Billion registering a growth of 5.43 percent. Total imports during April-November 2025 are estimated at US$ 651.13 Billion registering a growth of 5 percent.

Figure 12: Total Trade during April-November 2025



Source- Ministry of Commerce & Industry

- Exports of Iron Ore (70.23%), Cashew (57.17%), Oil Meals (40.28%), Other Cereals (40.17%), Mica, Coal & Other Ores, Minerals Including Processed Minerals (39.71%), Electronic Goods (38.96%), Coffee (34.31%), Meat, Dairy & Poultry Products (31.37%), Handicrafts Excl. Hand Made Carpet (29.74%), Gems & Jewellery (27.8%), Engineering Goods (23.76%), Drugs & Pharmaceuticals (20.91%), Ceramic Products & Glassware (20.07%), Organic & Inorganic Chemicals (18.49%), Cereal Preparations & Miscellaneous Processed Items (17.69%), Tea (17.42%), Man-Made Yarn/Fabs./Made-Ups Etc. (15.72%), Marine Products (15.54%), Spices (12.96%), Petroleum Products (11.65%), Rmg Of All Textiles (11.27%), Leather & Leather Products (5.88%), Tobacco (5.57%), Cotton Yarn/Fabs./Made-Ups, Handloom Products Etc. (4.09%) and Fruits & Vegetables (3.09%) record positive growth during November 2025 over the corresponding month of last year.
- Imports of Gold (-59.15%), Newsprint (-23.37%), Vegetable Oil (-19.77%), Petroleum, Crude & Products (-11.27%), Coal, Coke & Briquettes, Etc. (-5.71%), Chemical Material & Products (-4.05%), Artificial Resins, Plastic Materials, Etc. (-2.42%), Pulp And Waste Paper (-1.31%) and Organic & Inorganic Chemicals (-0.1%) record negative growth during November 2025 over the corresponding month of last year.
- Services exports is estimated to grow by 8.65 percent during April-November 2025 over April-November 2024.
- Top 5 export destinations, in terms of change in value, exhibiting growth in November 2025 vis a vis November 2024 are U S A (22.61%), China P Rp (90.12%), Spain (181.33%), U Arab Emts (13.16%) and Tanzania Rep (126.36%).

- Top 5 export destinations, in terms of change in value, exhibiting growth in April-November 2025 vis a vis April-November 2024 are U S A (11.38%), China P Rp (32.83%), Spain (54.54%), U Arab Emts (6.7%) and Hong Kong (22.37%).
- Top 5 import sources, in terms of change in value, exhibiting growth in November 2025 vis a vis November 2024 are China P Rp (18.28%), U S A (38.29%), Thailand (80.96%), Hong Kong (41.44%) and Brazil (77.42%).
- Top 5 import sources, in terms of change in value, exhibiting growth in April-November 2025 vis a vis April-November 2024 are China P Rp (12.63%), U S A (13.49%), Hong Kong (32.43%), U Arab Emts (8.81%) and Ireland (137%).

6. Success of GST 2.0

The Government launched comprehensive GST (Goods & Services Tax) reforms, introducing rate rationalisation with a simplified two-slab structure of 5% and 18%. The reform features sweeping rate reductions across key sectors, focusing on common man goods, labour intensive industries, agriculture, and healthcare, which serve as vital drivers of the economy.

Gross GST collections for October 2025 stood at ₹1.96 lakh crore, marking a 4.6% increase over ₹1.87 lakh crore recorded in the same month last year. The uptick in revenue, coinciding with the onset of rate rationalisation, underscores resilient consumption trends during the festive season.

The reduction in GST rates has lowered the cost of goods and services, boosted household savings and consumption, while expanded the tax base. At the same time, a broader tax base is aiding stable revenue trends, contributing to a more balanced and sustainable growth environment.

7. India's Growth Projections

India's growth outlook continues to strengthen, with major global and domestic institutions upgrading their projections in recognition of the economy's resilience and expanding domestic demand. The RBI has revised its FY 2025–26 GDP forecast upward from 6.5% to 6.8%, reflecting robust momentum across sectors. International agencies echo this optimism too.

- The World Bank projects 6.5% growth in 2026, citing strong consumption and the positive effects of GST reforms;
- Moody's expects India to remain a growing G20 economy through 2026 with growth rate of 6.4% and 6.5% in 2027;
- The IMF has boosted its projections to 6.6% for 2025 and 6.2% for 2026.
- The OECD has raised growth forecasts to 6.7% for 2025 and 6.2% for 2026.
- The S&P anticipate that India's GDP will grow by 6.5% in fiscal year 2026 and 6.7% in 2027.

Together, these revisions highlight broad international confidence in India's economic fundamentals and its ability to sustain strong, domestically driven growth despite evolving global challenges.

8. Despite global FDI slowdown, India's gross inflows remain healthy in FY26: CareEdge Ratings

Even as global foreign direct investment (FDI) has been losing momentum over the years, India's gross FDI inflows have remained resilient, supported by steady investment interest, according to a report by CareEdge Ratings.

The report highlighted that gross FDI inflows into India have stayed at healthy levels over the past decade. Gross inflows stood at USD 55.6 billion in FY16 and gradually rose to USD 60.2 billion in FY17, USD 61 billion in FY18 and USD 62 billion in FY19. Inflows strengthened further to USD 74.4 billion in FY20, USD 82 billion in FY21 and peaked at USD 84.8 billion in FY22.

While inflows moderated thereafter but they remained robust at USD 71.4 billion in FY23, USD 71.3 billion in FY24 and USD 80.6 billion in FY25. For FY26 year-to-date, gross FDI inflows are recorded at USD 50.4 billion as of September 2025.

In contrast, global FDI has been steadily losing steam. CareEdge Ratings highlighted that global net FDI inflows as a percentage of GDP have declined since the Global Financial Crisis, with successive shocks such as the Euro Area debt crisis, the Covid-19 pandemic and the Russia-Ukraine war adding further pressure.

It stated 'Global FDI net inflows as a percentage of GDP have declined since the Global Financial Crisis, with subsequent shocks adding further pressure'. The report pointed out that India has seen strong growth in greenfield investments across sectors such as semiconductors, electronics, electrical equipment, EV components, and basic metals.

At the same time, outward FDI from India averaged USD 22 billion during FY24-FY25, marking a 58 per cent increase over the average of USD 14 billion seen during FY21-FY23. Indian firms expanded their global footprint, particularly in Europe, South America, and Africa, investing in sectors including telecom, automotive, energy, defence, pharma, ports, and steel.

The report also pointed out that the five-year moving average of global FDI inflows shows a clear downward trend over the past decade.

9. India's petrol pump network surpasses 100,000; third-largest after US and China

India’s petrol pump network has crossed the 100,000 mark, nearly doubling over the past decade as state-run oil companies rolled out outlets aggressively to serve a vehicle boom and push fuel access deeper into rural areas.

India now has the world’s third-largest fuel retail network, behind the US and China, which each operate 110,000-120,000 pumps across far larger geographies. The expansion has largely resolved access constraints in rural and remote regions and improved customer service by intensifying competition. Rural outlets now account for 29 per cent of total pumps, up from 22 per cent a decade ago. The character of fuel stations too has changed: once limited to petrol and diesel, around one-third of outlets now offer alternative fuels, including CNG and EV charging.

India's petrol consumption has risen 110 per cent over the past decade, while diesel demand has grown 32 per cent, taking combined petrol and diesel volumes up by nearly 50 per cent. Average diesel sales per outlet are about double those of petrol.

Further, the addition of gas and charging facilities is expected to boost revenues at fuel retail outlets as alternative fuel-powered vehicles gain traction, adding that the move will expand customer choice while improving the long-term sustainability of fuel stations.

10. India reclaims spot as world's third-largest wind market in 2025: BNEF

India has regained its position as the world's third-largest wind energy market in 2025 after record capacity additions, according to a latest report by Bloomberg NEF (BNEF). The country is expected to add 6.2 GW of wind power this year, nearly double the installations recorded in 2024, placing it behind China and the United States. NEF said that India's annual additions crossed the previous record set in 2017, with 5.8 GW of new capacity installed by November 2025. The rise has pushed India ahead of Brazil and Germany for the first time since 2019.

The report noted that India's move from stand-alone wind tenders to complex renewable energy auctions has reshaped the market. These auctions combine wind, solar and battery storage and often require developers to oversize projects beyond contracted capacity. BNEF said that nearly two-thirds of all auctioned capacity in 2024 came from such complex tenders, with overall clean energy auction volumes rising to about 60 GW that year. The shift is expected to support more than 30 GW of additional wind installations by 2030 as developer's complete hybrid and round-the-clock supply projects.

The report added that new localisation rules issued in 2025 require turbine makers to source upstream components, including generators, bearings, and blades, from approved domestic manufacturers. The mandate is expected to narrow cost differences between Indian and Chinese turbine models.

India's overall wind market recovery is taking place as the country targets 500 GW of non-fossil fuel power capacity by 2030. Transmission expansion plans announced by the central government in 2024 aim to support this buildout and ease grid constraints.

Lessons from Economics

Coverage Ratio

Coverage ratios are a group of financial metrics used by lenders, investors, and analysts to measure a company's ability to service its debt and meet other financial obligations. A high coverage ratio indicates that it is likely the company will meet its future interest payments and meet all its financial obligations.

Analysts and investors may study any changes in a company's coverage ratio over time to assess the company's financial position. Coverage ratios are also valuable when comparing one company to its competitors. Evaluating the coverage ratios of companies in the same industry or sector can provide useful insights into their relative financial positions.

Types of Coverage Ratios

There are different types of coverage ratios. Common coverage ratios include the interest coverage ratio, debt service coverage ratio, and asset coverage ratio.

- **Interest Coverage Ratio**

The interest coverage ratio measures the ability of a company to pay the interest expenses on its debt. The interest coverage ratio—also called the times interest earned (TIE) ratio—is defined as:

Interest Coverage Ratio = EBIT / Interest Expense

Where:

EBIT = Earnings before interest and taxes

An interest coverage ratio of two or higher is generally considered satisfactory.

- **Debt Service Coverage Ratio**

The debt service coverage ratio (DSCR) measures how well a company is able to pay its entire debt service. Debt service includes all principal and interest payments due to be made in the near term. The ratio is defined as:

DSCR = Net Operating Income / Total Debt Service

A ratio of one or above is indicative that a company generates sufficient earnings to completely cover its debt obligations.

- **Asset Coverage Ratio**

The asset coverage ratio is similar in nature to the debt service coverage ratio, but it looks at balance sheet assets (instead of comparing income to debt levels). The ratio is defined as:

Asset Coverage Ratio = Total Assets - Short-Term Liabilities / Total Debt

Where:

Total Assets = Tangibles (such as land, buildings, machinery, and inventory)

As a rule of thumb, utilities should have an asset coverage ratio of at least 1.5, and industrial companies should have an asset coverage ratio of at least two.

Other Coverage Ratios

Several other coverage ratios are also used by analysts:

- The **fixed-charge coverage ratio** measures a firm's ability to cover its fixed charges, such as debt payments, interest expense, and equipment lease expense. It shows how well a company's earnings can cover its fixed expenses. Banks often look at this ratio when evaluating whether to lend money to a business.

- The **loan life coverage ratio (LLCR)** is used to estimate the solvency of a firm—or the ability of a borrowing company to repay an outstanding loan. The LLCR is calculated by dividing the net present value (NPV) of the money available for debt repayment by the amount of outstanding debt.

- The **EBITDA-to-interest coverage ratio** is used to assess a company's financial durability by examining whether it is profitable enough to pay off its interest expenses.

- The **preferred dividend coverage ratio** measures a company's ability to pay off its required, preferred dividend payments. Preferred dividend payments are the scheduled dividend payments that are required to be paid on the company's preferred stock shares. Unlike common stock shares, the dividend payments for preferred stock are set in advance. They cannot be changed from quarter to quarter; the company is required to pay them.

- The **liquidity coverage ratio (LCR)** refers to the proportion of highly liquid assets held by financial institutions to ensure their ongoing ability to meet short-term obligations. This ratio is essentially a generic stress test; it is analysed to anticipate market-wide shocks and make sure that financial institutions possess suitable capital preservation to ride out any short-term liquidity disruptions that may impact the market.

- The **capital loss coverage ratio** is the difference between an asset's book value and the amount received from a sale relative to the value of the nonperforming assets being liquidated. The capital loss coverage ratio is an expression of how much transaction assistance is provided by a regulatory body for an outside investor to take part.

Oil Market

Crude oil price – Monthly Review

The apparent disconnect between the current global oil surplus on the one hand and inventories near decade lows at key pricing hubs on the other. Indeed, despite record volumes of oil piling up on water, benchmark crude oil prices eased only marginally in November, with North Sea Dated last trading at around $63/bbl and WTI at $59/bbl, with lower forward disincentivizing storage. Still, the market mb/d Demand/Supply Balance trends have clearly been affecting prices over time, with ICE Brent down by nearly $20/bbl since January.

Hedge funds and other money managers maintained a broadly bearish stance toward crude oil prices in November, reinforcing downward pressure on the futures complex. Between the weeks of 28 October and 25 November, speculative participants sold the equivalent of around 51 mb, reflecting a continued retreat from bullish positions. Net long positions in ICE Brent futures and options declined as short positions rose to near-record levels, amplifying bearish sentiment and heightening market volatility. The build-up in short exposure came alongside continued liquidation of bullish positions following the previous month's selloff.

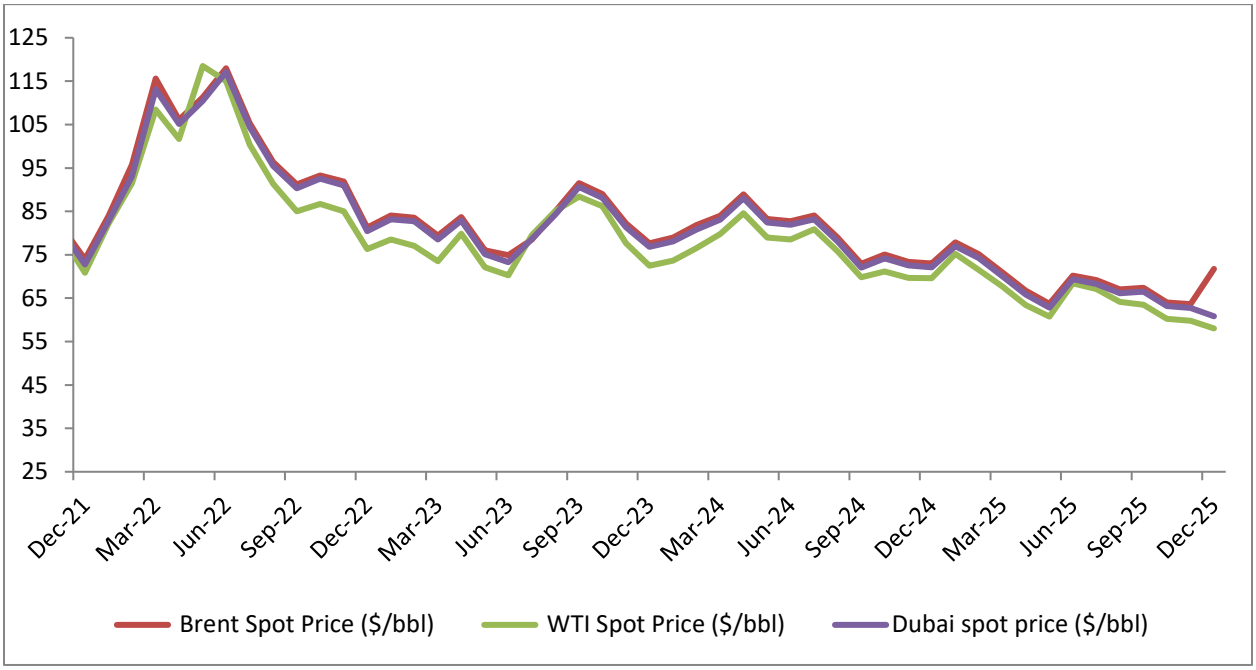
Crude spot prices averaged lower in November. Selling pressure in futures markets, along with efforts by refiners and traders to keep oil stocks low to avoid high value-based inventory taxes at the end of the year, weighed on spot prices. High freight rates for main routes also weighed down on spot prices. These factors were partially offset by positive developments that limited the decline in prices, including higher global refinery intake in November and stronger refining margins across all major trading hubs. Signs of renewed demand in the spot market, as well as concerns about the supply of sour crude due to additional supply restrictions in Eastern Europe, helped to support prices.

The premium of light sweet over medium sour crudes narrowed in November across all major refining hubs, reflecting a broad softening in the light sweet crude market. Concerns over sour crude availability persisted, as tighter restrictions on supply flows from Eastern Europe increased demand for medium- and heavy-sour grades in other regions, thereby increasing their relative value. Meanwhile, the supply of light sweet crude remained ample, with US crude exports supported by favourable outbound arbitrage economics. This occurred despite weaker high-sulphur fuel oil and a widening of product cracks between light/medium distillates and heavy distillates, including the gasoline-HSFO and diesel/gasoil-HSFO spreads.

In November, the ORB value dropped by 74¢/b, month-on-month (m-o-m), to average $64.46/b. The ICE Brent front-month contract dropped by 29¢/b, m-o-m, to average $63.66/b, and the NYMEX WTI dropped by 59¢/b, m-o-m, to average $59.48/b. The ICE Brent–NYMEX WTI front-month spread averaged $4.18/b in November, up by 30¢/b, m-o-m. The GME Oman front-month contract dropped 41¢/b, m-o-m, in November to average $64.53/b.

Brent crude ranged an average to $61.58 a barrel and WTI ranged to $58.00 per barrel in the month of December 2025.

Figure 13: Benchmark price of Brent, WTI and Dubai crude



Source - World Bank

- Brent crude price averaged $61.58 per bbl in December 2025, down by 3.2% on a month on month (MoM) and by 15.6% on year on year (YoY) basis, respectively.
- WTI crude price averaged $58.00 per bbl in December 2025, down by 3.0% on a month on month (MoM) and by 16.7% on year on year (YoY) basis, respectively.
- Dubai crude price averaged $60.79 per bbl in December 2025, down by 3.2% on a month on month (MoM) and by 15.7% on year on year (YoY) basis, respectively.

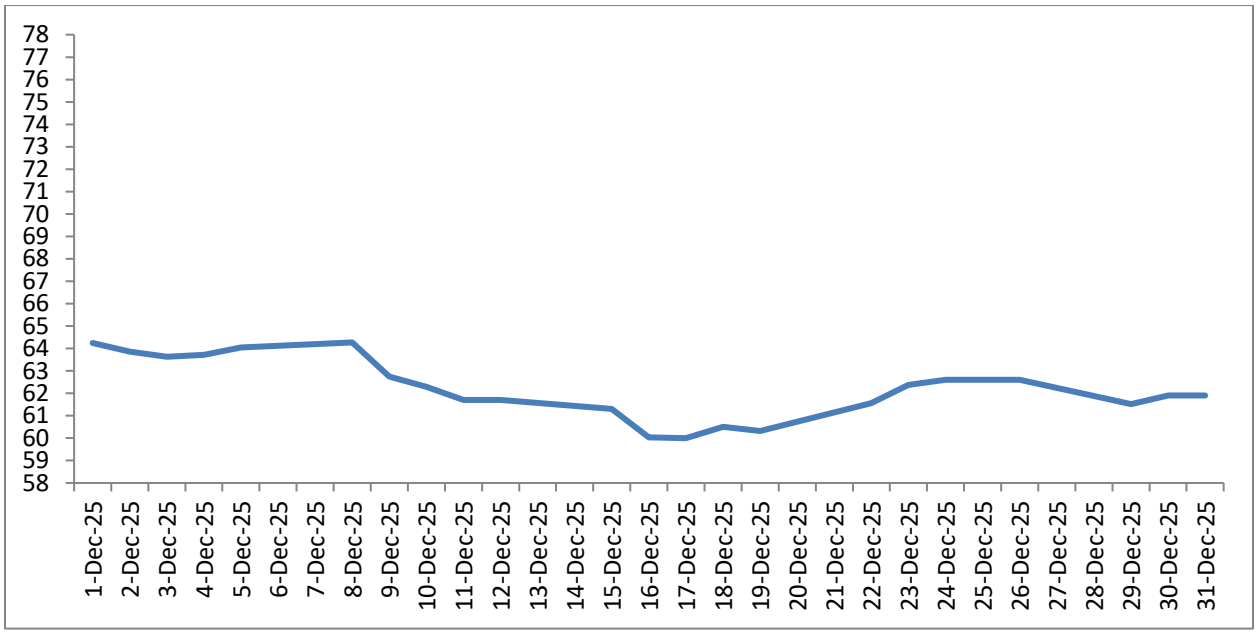
Table 2: Crude oil price in December, 2025

Crude oil	Price ($/bbl)	MoM (%) change	YoY (%) change
Brent	61.58	-3.2%	-15.6%
WTI	58.00	-3.0%	-16.7%
Dubai	60.79	-3.2%	-15.7%

Source - World Bank

Indian Basket Crude oil price

Figure 14: Indian crude oil basket price in $ per bbl



Source - PPAC

- Indian crude basket price averaged $62.22 per barrel in December 2025, down by 3.9% on Month on Month (M-o-M) and by 15.0% on a year on year (Y-o-Y) basis, respectively.

Oil production situation

- Non-DoC liquids production (i.e. liquids production from countries not participating in the Declaration of Cooperation) is forecast to grow by about 1.0 mb/d, y-o-y, in 2025.

- The main growth drivers for 2025 are expected to be the US, Brazil, Canada, and Argentina. The non-DoC liquids production growth forecast for 2026 remains at 0.6 mb/d, y-o-y, with Brazil, Canada, the US, and Argentina as the main growth drivers. Natural gas liquids (NGLs) and non-conventional liquids from countries participating in the DoC are forecast to grow by 0.1 mb/d, y-o-y, in 2025, to average 8.6 mb/d, followed by a similar increase of about 0.1 mb/d, y-o-y, in 2026, to average 8.8 mb/d. Crude oil production by countries participating in the DoC increased by 43 tb/d in November, m-o-m, to average about 43.06 mb/d.

Table 3: Non-DoC liquids production in 2025, mb/d

Non-OPEC liquids production	2024	1Q25	2Q25	3Q25	4Q25	2025
Americas	27.72	27.99	28.35	28.89	27.94	28.29
of which US	*21.76*	*21.75*	*22.43*	*22.81*	*21.87*	*22.22*
Europe	3.53	3.59	3.55	3.66	3.55	3.59
Asia Pacific	0.44	0.40	0.43	0.39	0.41	0.41
Total OECD	**31.69**	**31.98**	**32.34**	**32.94**	**31.89**	**32.29**
China	4.56	4.69	4.66	4.59	4.55	4.62
India	0.81	0.83	0.82	0.81	0.80	0.82
Other Asia	1.60	1.62	1.63	1.64	1.58	1.62
Latin America	7.23	7.34	7.52	7.72	7.60	7.55
Middle East	1.99	1.99	1.99	2.00	1.99	1.99
Africa	2.33	2.30	2.24	2.27	2.27	2.27
Other Eurasia	0.37	0.36	0.35	0.36	0.36	0.36
Other Europe	0.10	0.09	0.10	0.09	0.09	0.09
Total Non-OECD	**18.99**	**19.22**	**19.31**	**19.50**	**19.25**	**19.32**
Total Non-DoC production	50.68	51.20	51.65	52.43	51.14	51.61
Processing gains	2.52	2.54	2.54	2.54	2.54	2.54
Total Non-DoC liquids production	**53.20**	**53.74**	**54.19**	**54.97**	**53.68**	**54.15**

Source - OPEC monthly report, December 2025

- From the above table, it can be inferred, that the total non-DoC liquids production is expected to reach 54.15 mb/d by 2025.
- The non-DoC liquids production (i.e. liquid production countries not participating in the Declaration of Cooperation) is forecast to grow by about 1.0 mb/d, y-o-y in 2025.

Oil demand situation

- The global oil demand growth forecast for 2025 remains at about 1.3 mb/d, y-o-y, unchanged from last month's assessment. In the OECD, oil demand is forecast to grow by about 0.1 mb/d in 2025, while oil demand in the non-OECD is forecast to grow by about 1.2 mb/d.
- In 2026, global oil demand is forecast to grow by about 1.4 mb/d, y-o-y, also unchanged from last month's assessment. The OECD is forecast to grow by about 0.2 mb/d, y-o-y, while the non-OECD is forecast to grow by about 1.2 mb/d, y-o-y.

Table 4: World Oil demand, mb/d

	2024	1Q25	2Q25	3Q25	4Q25	2025	Growth	%
Total OECD	**45.84**	**45.17**	**45.63**	**46.55**	**46.49**	**45.96**	**0.12**	**0.26**
~ of which US	*20.58*	*20.42*	*20.63*	*21.14*	*21.02*	*20.80*	*0.23*	*1.07*
Total Non-OECD	**58.00**	**59.10**	**58.58**	**58.94**	**60.08**	**59.17**	**1.18**	**2.02**
~ of which India	*5.55*	*5.70*	*5.68*	*5.35*	*5.89*	*5.66*	*0.10*	*1.98*
~ of which China	16.65	16.86	16.47	17.06	17.06	16.87	0.21	1.32
Total world	**103.84**	**104.26**	**104.21**	**105.49**	**106.57**	**105.14**	**1.30**	**1.25**

Source - OPEC monthly report, December 2025

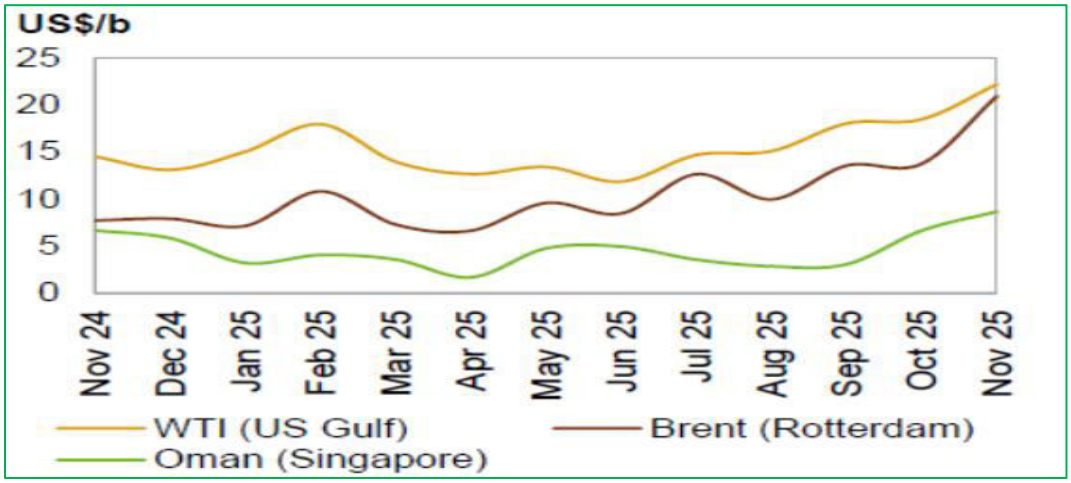
Global petroleum product prices

US Gulf Coast (USGC) refining margins against WTI increased to reach the highest level registered since February 2024, with strength manifesting across the entire barrel except for high-sulphur fuel oil. Gasoil was the top performer, registering a notable m-o-m crack spread increase, while solid jet/kerosene, gasoline and naphtha gains further contributed to stronger refining economics in November. Geopolitical product supply concerns, particularly regarding middle distillates and low product inventories relative to historic averages, continued to support bullish sentiment in product markets. Increased mobility around the Thanksgiving holiday season in the US likely provided additional support. Going forward, product balances are expected to expand further on elevated refinery runs, which could pressure US refining margins. However, the upside potential of heating fuel demand and expectations of an uptick around the year-end holiday season could offset some of the supply-side and seasonal pressures.

According to preliminary data, refinery intake in the USGC increased by 730 tb/d, m-o-m, to average 16.61 mb/d in November. USGC margins against WTI averaged $22.18/b, up by $3.72, m-o-m, and up by $7.70, y-o-y.

Rotterdam refinery margins against Brent surged, showing the largest m-o-m increase relative to the USGC and Singapore and reaching a 27-month high. Concerns over declining gasoil/diesel availability against a backdrop of geopolitical supply factors supported gasoil prices over the month despite higher refinery output. Total product stocks in Amsterdam-Rotterdam-Antwerp showed a 1.3% increase, m-o-m, while they were 5.4% lower, y-o-y, according to Global S&P data as of 27 November 2025. However, the impact of the sustained geopolitical factors in Europe and a decline in Russian products continued to create uncertainty regarding product supplies, exerting upward pressure on product crack spreads and margins. According to preliminary data, refinery runs in November increased by 240 tb/d to an average of 9.60 mb/d in EU-14, plus Norway and the UK. Refinery margins against Brent in Europe averaged $20.91/b in November, which was $7.18 higher, m-o-m, and $13.21 higher, y-o-y.

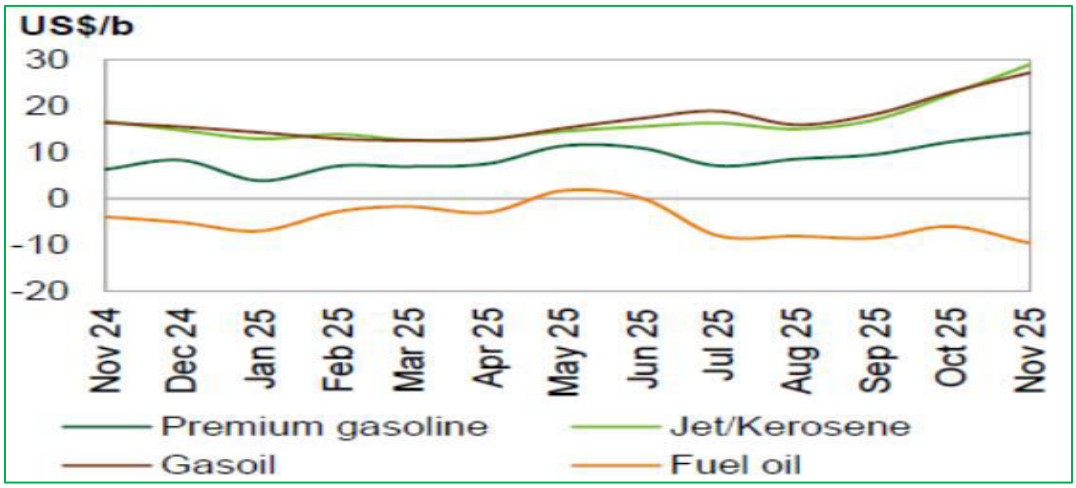
Figure 15: Refining Margins ($/bbl)



Source - Argus and OPEC

The Southeast Asia gasoline 92 crack spread against Dubai rose for the fourth consecutive month, reaching a 21-month high, as stronger fundamentals exerted upward pressure on gasoline margins. Decreased supplies due to elevated refinery maintenance activities, limited supplies from the Middle East and subdued exports from China provided support. The margin averaged $14.23/b in November, up $1.97/b, m-o-m, and $7.93/b, y-o-y.

Figure 16: Singapore crack Spreads vs. Dubai ($/bbl)



Source - Argus and OPEC

The Singapore gasoil crack spread extended its upward trend, reflecting a tightening market. According to Kpler, sanctions on Rizhao – a key staging area for Sinopec's 1.1 mb/d inland refining system – have disrupted China's 4Q25 loading programmes. Sinopec has effectively halted all gasoil exports in November as its coastal refineries divert volumes inland to cover shortages. Moreover, reduced supply from ongoing regional refinery issues in the Middle East led to lower gasoil inflows into Asia, further contributing to the regional gasoil availability contraction. The Singapore gasoil crack spread against Dubai averaged $27.20/b, up $4.21/b, m-o-m, and $10.82/b, y-o-y.

Table 5: Singapore FOB, refined product prices ($/bbl) in November 2025

Singapore product prices	Price ($/b)	MoM (%) change	YoY (%) change
Naphtha	62.11	0.1%	-11.2%
Premium gasoline (unleaded 95)	81.43	2.2%	-3.7%
Regular gasoline (unleaded 92)	78.69	2.1%	-0.3%
Jet/Kerosene	93.37	6.8%	4.4%
Gasoil/Diesel (50 ppm)	92.62	4.7%	3.9%
Fuel oil (180 cst 2.0% S)	90.69	3.9%	2.0%
Fuel oil (380 cst 3.5% S)	54.88	-6.7%	-20.2%

Source - OPEC

Petroleum products consumption in India

Monthly Review:

- Overall consumption of all petroleum products in November 2025 with a volume of 21.27 MMT registered de-growth of 2.98% on volume of 20.66 MMT in November 2024.
- MS (Petrol) consumption during the month of November 2025 with a volume of 3.52 MMT recorded a growth of 2.59% on volume of 3.43 MMT in November 2024.
- HSD (Diesel) consumption during the month of November 2025 with a volume of 8.55 MMT recorded growth of 4.73% on volume of 8.17 MMT in the month of November 2024.
- LPG consumption during the month of November 2025 with a volume of 2.86 MMT registered a growth of 7.41% over the volume of 2.67 MMT in the month of November 2024.
- ATF consumption during November 2025 with a volume of 0.788 MMT registered a growth of 5.37% over the volume of 0.748 MMT in November 2024.
- Bitumen consumption during November 2025 with a volume of 0.913 MMT registered growth of 28.95% over volume of 0.708 MMT in the month of November 2024.
- Kerosene consumption registered growth of 19.21% during the month of November 2025 as compared to November 2024.

Table 6: Petroleum products consumption in India, November 2025 and Year till Date (YTD)

	Monthly			Year till Date	
Consumption of Petroleum Products (P)	Consumption in '000 MT	MoM (%) change	YoY (%) change	Consumption in '000 MT	YoY (%) change
LPG	2,862	-0.4%	7.4%	21,963	7.61%
Naphtha	886	-0.7%	-19.4%	7,597	-15.41%
MS	3,517	-4.0%	2.6%	28,372	6.30%
ATF	788	2.0%	5.4%	5,979	1.65%
SKO	43	-0.7%	19.2%	299	9.17%
HSD	8,552	12.2%	4.7%	61,858	2.76%
LDO	88	16.4%	9.7%	672	24.63%
Lubricants & Greases	391	8.1%	11.3%	3,066	1.36%
FO & LSHS	560	-4.2%	12.0%	4,160	-5.35%
Bitumen	913	38.9%	29.0%	5,348	7.48%
Petroleum coke	1,780	1.8%	-13.5%	13,979	-3.31%
Others	892	2.1%	9.0%	6,939	-15.17%
TOTAL	**21,272**	**5.5%**	**3.0%**	**1,60,230**	**1.41%**

Source- PPAC

Year Till Date: 1st April 2025 – 31st March 2026

Natural Gas Market

Natural Gas Price – Monthly Review

- Natural Gas spot prices at the US Henry Hub benchmark averaged $3.79 per million British thermal units (MMBtu) in November 2025. Henry Hub's natural gas prices rose for a third consecutive month, increasing by 18.8%, m-o-m, in November. Prices continued to advance, supported by a combination of the shift into the US heating season and higher LNG demand, particularly from the EU, as it looks to replenish its inventories. However, reports of higher storage levels limited gains. According to data from the US Energy Information Administration (EIA), average weekly natural gas storage increased by 4.0%, m-o-m, in November. Prices were up by ~78%, y-o-y.

- Natural gas spot price at the Title Transfer Facility (TTF) in the Netherlands in Europe traded at an average of $10.42 per MMBtu. The average Title Transfer Facility (TTF) declined for a fourth consecutive month in November, falling by 4.3%, m-o-m. A decline in gas storage levels lifted prices in the period amid seasonal heating demand. According to data from Gas Infrastructure Europe, EU storage levels fell to 75.4% as of the end of November, down from 82.8% the previous month, representing a 7.4 percentage point decrease. However, ongoing LNG supply offset pressure from supply risk concerns. Prices were down by 25.2%, y-o-y.

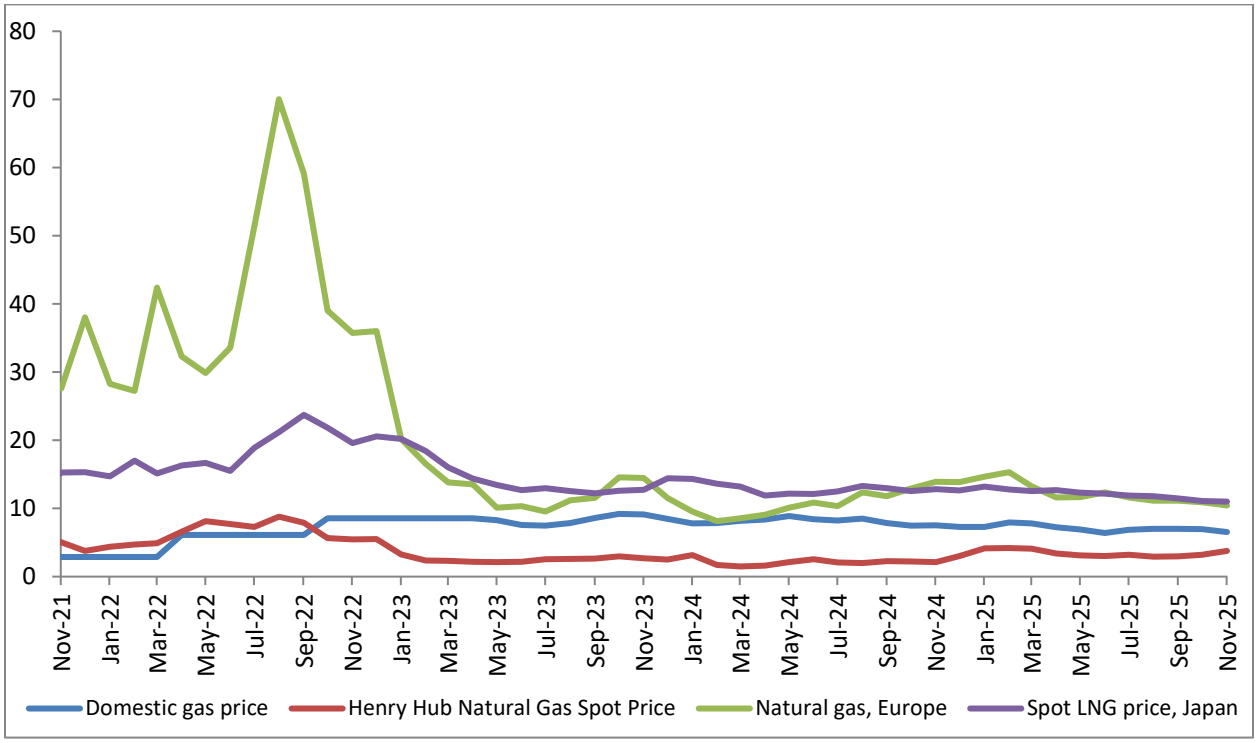
- Japan Liquefied Natural Gas Import Price averaged at $11.02 per MMBtu for November 2025. There is a change of -0.7% from last month and -14.0% from one year ago.

- 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% of the price of basket of crude oil that India imports. The rate such arrived at however will be capped at US$ 6.50 per MMBTU. The price such arrived at will also have a floor of US$4 per MMBTU. As per notification dated 31st March 2025, the APM gas price has been raised to US$ 6.75 per MMBTU, up from US$ 6.50 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. As per notification dated 30th September 2023, Gas price ceiling was further revised for the period 1st October, 2023 – 31st March, 2024 was notified as US$9.96/MMBTU on Gross Calorific Value (GCV) basis. Prices were further revised for the period 1st April, 2024 – 30th September, 2024 was notified as US$9.87/MMBTU on Gross Calorific Value (GCV) basis as per notification dated 31st March 2024. Accordingly, for the period 1st October, 2024 – 31st March, 2025 gas price ceiling was further revised as US$10.16/MMBTU on Gross Calorific Value (GCV) basis as per notification dated 30th September 2024. Now, as per notification dated 31st March 2025, Gas price ceiling was further revised for the period 1st April, 2025 – 30th September, 2025 was notified as US$10.04/MMBTU

on Gross Calorific Value (GCV) basis. Prices were further revised for the period 1st October, 2025 – 31st March, 2026 was notified as US$9.72/MMBTU on Gross Calorific Value (GCV) basis as per notification dated 30th September 2025.

Figure 17: Global natural gas price trends ($/mmbtu)



Source - EIA, World Bank

Table 7: Gas price, November 2025

Natural Gas	Price ($/MMBTU)	MoM (%) change	YoY (%) change
India, Domestic gas price (Dec'25)	6.48	-1.07%	-11.11%
India, Gas price ceiling – difficult areas (Oct'25-Mar'26)	9.72	-3.19%	-4.33%
GIXI (Gas index of India) price*	11.2	2.0%	-10.0%
Henry Hub	3.79	18.8%	78.8%
Natural Gas, Europe	10.42	-4.3%	-25.2%
Liquefied Natural Gas, Japan	11.02	-0.7%	-14.0%

Source - EIA, PPAC, World Bank, IGX

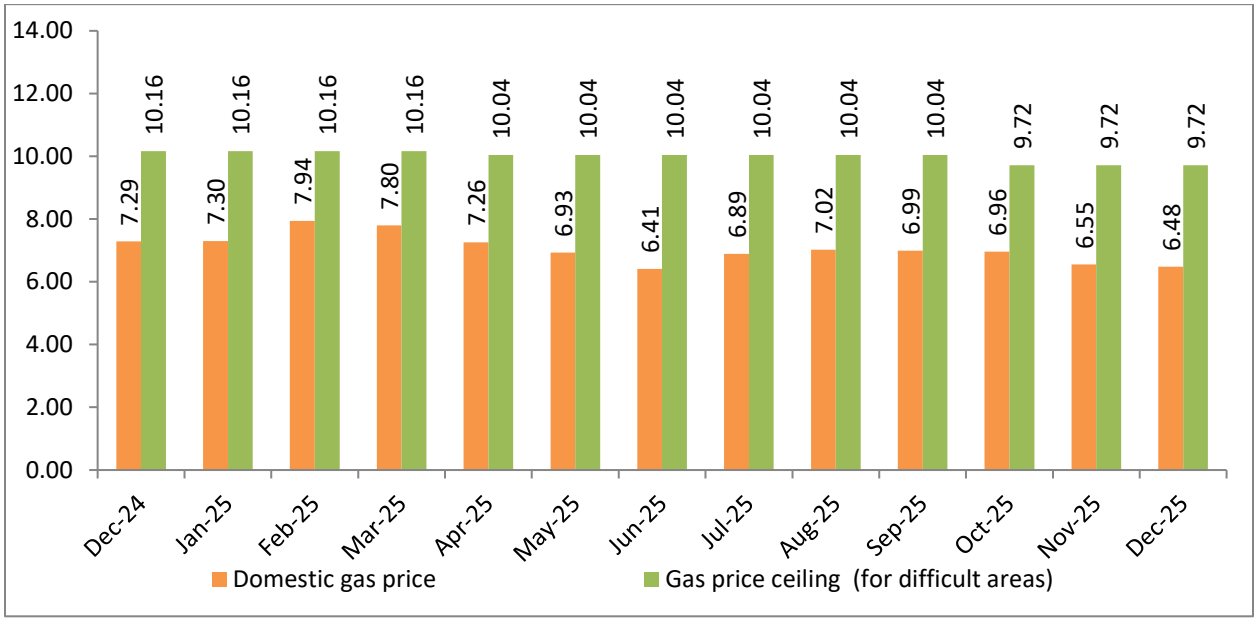
**Prices are weighted average prices (excluding ceiling price gas)*

Table 8: Gas price, GCV Basis

Period	Domestic Gas calculated price in US$/MMBTU	Gas price ceiling – difficult areas price in US$/MMBTU
1-31 May 2023	8.27	12.12
1-30 June 2023	7.58	12.12
1-31 July 2023	7.48	12.12
1-31 August 2023	7.85	12.12
1-30 September 2023	8.60	12.12
1-31 October 2023	9.20	9.96
1-30 November 2023	9.12	9.96
1-31 December 2023	8.47	9.96
1-31 January 2024	7.82	9.96
1-29 February 2024	7.85	9.96
1-31 March 2024	8.17	9.96
1-30 April 2024	8.38	9.87
1-31 May 2024	8.90	9.87
1-30 June 2024	8.44	9.87
1-31 July 2024	8.24	9.87
1-31 August 2024	8.51	9.87
1-30 September 2024	7.85	9.87
1-31 October 2024	7.48	10.16
1-30 November 2024	7.53	10.16
1-31 December 2024	7.29	10.16
1-31 January 2025	7.30	10.16
1-28 February 2025	7.94	10.16
1-31 March 2025	7.80	10.16
1-30 April 2025	7.26	10.04
1-31 May 2025	6.93	10.04
1-30 June 2025	6.41	10.04
1-31 July 2025	6.89	10.04
1-31 August 2025	7.02	10.04
1-30 September 2025	6.99	10.04
1-31 October 2025	6.96	9.72
1-30 November 2025	6.55	9.72
1-31 December 2025	6.48	9.72

Source – PPAC

Figure 18: Domestic natural gas price December'24–25 ($/mmbtu)



Source - PPAC

Indian Gas Market

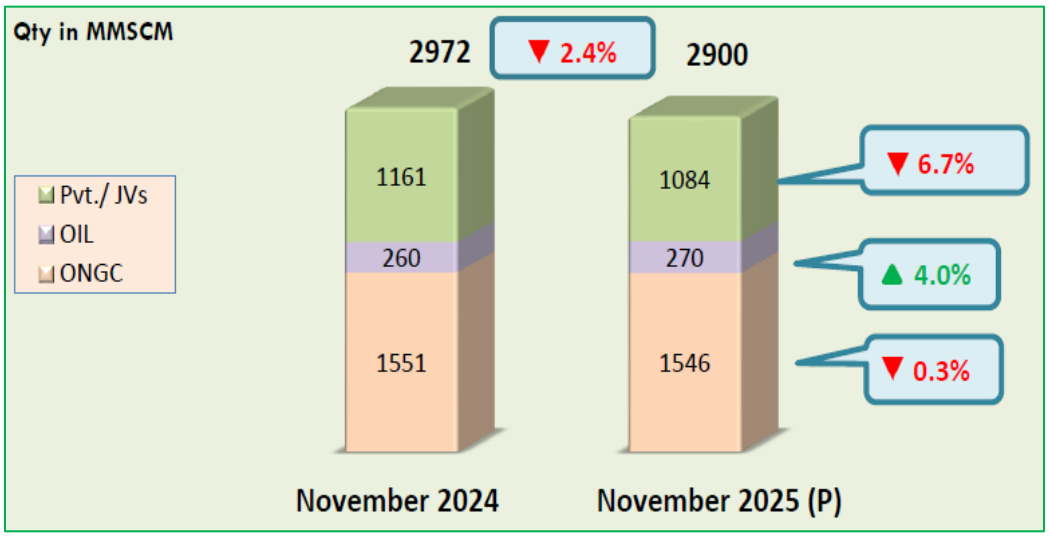
- Gross production of natural gas for the month of November 2025 (P) was 2900 MMSCM which was lower by 2.4% compared with the corresponding month of the previous year.
- Total Import of LNG (Provisional) during the month of November 2025 (P) was 2812 MMSCM (higher by 3.7% over the corresponding month of the previous year).
- Natural Gas available for Sale during November 2025 (P) was 5233 MMSCM (P) (increase of 0.9% over the corresponding month of the previous year).
- Total Gas Consumption Availability during November 2025 (P) was 5675 MMSCM (Provisional). Major consumers were Fertilizer (30%), City Gas Distribution (CGD) (24%), Power (10%), Refinery (9%) and Petrochemicals (6%).

Monthly Report on Natural gas production, imports, and consumption – November 2025

1. Domestic Natural Gas Gross Production:

Domestic natural gas gross production for the month of November 2025 was 2900 MMSCM (decrease of 2.4% over the corresponding month of the previous year).

Figure 19: Domestic natural gas Gross production (Qty in MMSCM)

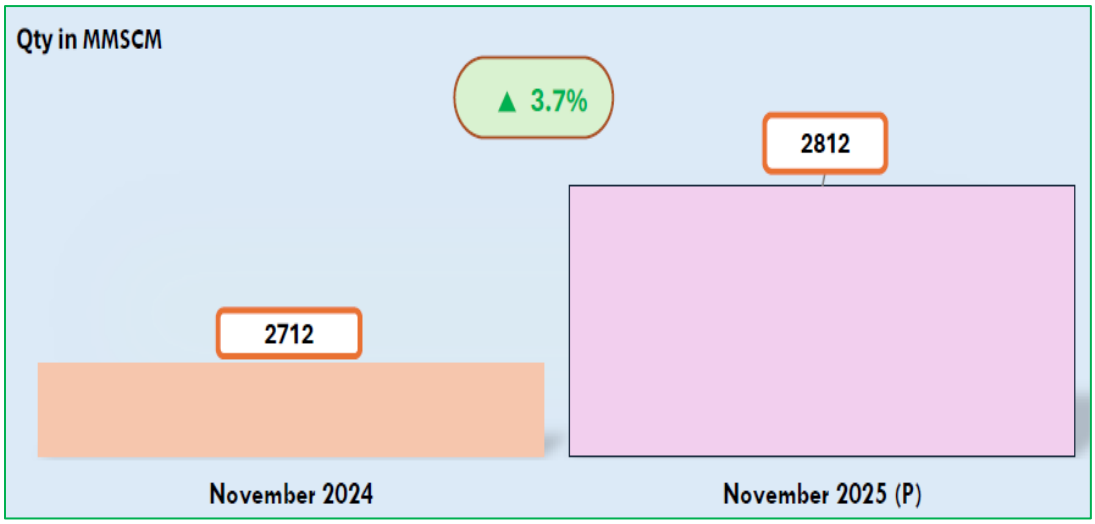


Source - PPAC

2. LNG imports:

Total import of LNG (provisional) during the month of November 2025 was 2812 MMSCM (P) (higher by 3.7% over the corresponding month of the previous year).

Figure 20: LNG imports (Qty in MMSCM)

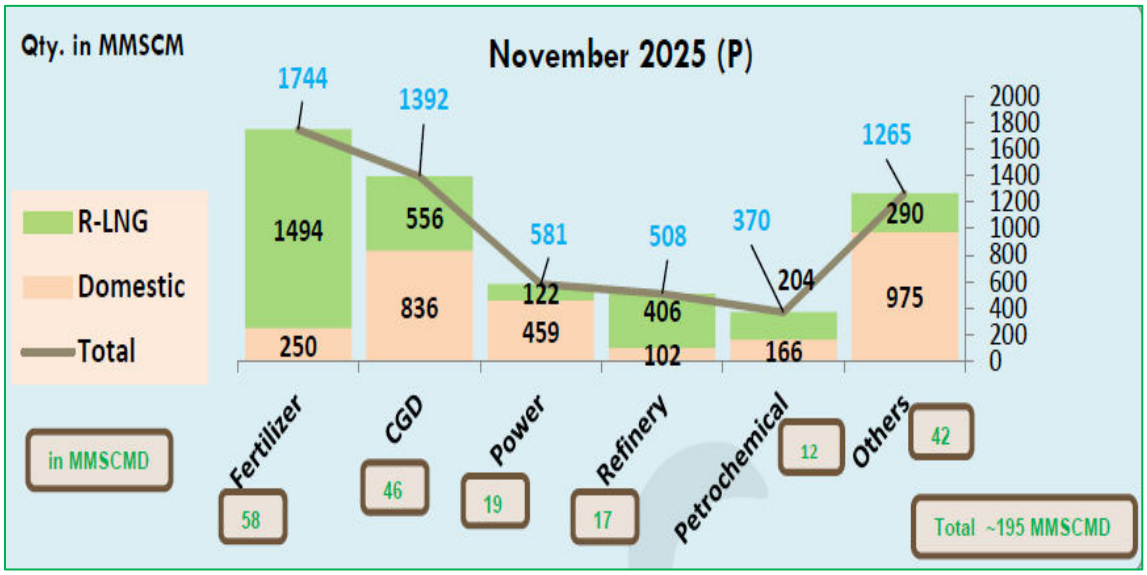


Source - PPAC

3. Sectoral Consumption of Natural Gas:

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

Figure 21: Sectoral Consumption of Natural Gas (Qty in MMSCM) in November 2025



Source - PPAC

Key developments in Oil & Gas sector

Monthly Production Report for November, 2025

1. Production of Crude Oil

Indigenous crude oil and condensate production during November 2025 was 2.3 MMT. Around 76% of production came from Nomination Fields, 13.4% from Pre-NELP Fields and 10.4% from NELP fields, during November 2025. There is a de-growth of 2.6% in crude oil and condensate production during November 2025 as compared with the corresponding period of the previous year.

2. Production of Natural Gas

Gross production of natural gas for the month of November 2025 (P) was 2900 MMSCM which was lower by 2.4% compared with the corresponding month of the previous year. The cumulative gross production of natural gas of 23439 MMSCM for the current financial year till November 2025 was lower by 3.3% compared with the corresponding period of the previous year.

3. Crude Oil Processed (Crude Throughput)

Total Crude oil processed during November 2025 was 22.3 MMT which is 2.3% higher than November 2024, where PSU/JV refiners processed 15.1 MMT and private refiners processed 7.3 MMT of crude oil. Total indigenous crude oil processed was 2.1 MMT and total Imported crude oil processed was 20.2 by all Indian refineries (PSU+JV+PVT). There was a growth of 2.1% in total crude oil processed in April-November current Financial Year as compared to same period of previous Financial Year.

4. Production of Petroleum Products

Production of petroleum products was 23.3 MMT during November 2025 which is -0.2% lower than November 2024. Out of 23.3 MMT, 23 MMT was from refinery production & 0.3 MMT was from fractionator. There was a growth of 0.5% in production of petroleum products in April-November FY 2025 – 26 as compared to same period of FY 2024 – 25. Out of total POL production, in November 2025, share of major products including HSD is 41.5%, MS 18.1%, Naphtha 6.3%, ATF 5.8%, Pet Coke 5.4%, LPG 4.4%, and rest is shared by Bitumen, FO/LSHS, LDO, Lubes & others.

Key Policy developments/Significant news in Energy sector

Government Expands Refining Capacity, Boosts Biofuel & Green Hydrogen Mission

The current total refining capacity of the country is 258.1 million Metric Tonne Per Annum (MMTPA) which is projected to increase to 309.5 MMTPA by 2030. Alongside, the overall Petrochemical Intensity Index (PII) of the public sector oil refineries is anticipated to increase from 4.1 to approximately 9.3 upon completion of ongoing and planned refinery projects. Government has implemented various initiatives to promote biofuels, green hydrogen, and Liquefied Natural Gas (LNG), which inter-alia include achieving 20% ethanol blending under the Ethanol Blending Programme (EBP), and broadening the scope of feedstock to enhance the availability of ethanol. The Pradhan Mantri Jaiv Indhan-Vatavaran Anukool Fasal Awashesh Nivaran (PM JI-VAN) Yojana has been launched to provide financial assistance for setting up projects for advanced biofuels, including Sustainable Aviation Fuel (SAF). For the promotion of Compressed Biogas (CBG), the Sustainable Alternative Towards Affordable Transportation (SATAT) scheme has been launched, and schemes like BAM (Biomass Aggregation Machinery) and DPI (Direct Pipeline Infrastructure) have been introduced to support biomass aggregation and to connect CBG plants to the existing pipeline network. National Green Hydrogen Mission (NGHM) has been launched with the objective of production of 5 MMTPA green hydrogen by 2030. Government has also taken various steps to augment the availability of LNG for various sectors which, inter-alia, includes establishment of LNG infrastructure including LNG terminals and LNG stations.

Cleaner fuels such as biofuels, green hydrogen, and LNG have the potential to contribute to emission avoidance across key sectors, including transport and other critical, hard-to-abate industries like cement, iron and steel. Their adoption has the potential to contribute to the reduction of overall emission intensity and supports the transition to a low-carbon economy, thereby aligning with national climate goals and international commitments.

Government has Approved 25 Lakh Additional LPG Connections Under PMUY for FY 2025-26

Pradhan Mantri Ujjwala Yojana (PMUY) was launched in May, 2016 to provide deposit free LPG connection to adult women from poor households across the country. As on 01.11.2025, there were about 10.33 crore PMUY connections across the country.

Government has recently approved the release of 25 lakh additional LPG connections under PMUY during Financial Year 2025-26 to clear pending applications and achieve saturation of LPG access in the country. To further improve access, the eligibility criteria have been simplified to “Adult women from poor households based on submission of a Deprivation Declaration”.

To make LPG more affordable to PMUY consumers and ensure sustained usage of LPG by them, in May 2022 Government started a targeted subsidy of ₹ 200/- per 14.2 kg cylinder (and proportionately pro-rated for 5 Kg connections) to the PMUY consumers which was subsequently increased to ₹ 300/- per 14.2 kg cylinder (and proportionately pro-rated for 5 Kg connections).

For FY 2025-26, the Government is providing a targeted subsidy of ₹ 300/- per cylinder for up to 9 refills of 14.2 Kg cylinders per annum (proportionately pro-rated for 5 Kg connections).

Government monitors LPG consumption through reports/MIS/consumption profile through PPAC/OMCs. Additionally, various independent studies and reports have shown that PMUY scheme has had a significant positive impact on the lives of rural households, especially women and families in rural and remote areas. Some key benefits are briefly explained below:

(i) PMUY had resulted in a shift from traditional cooking methods that involve burning solid fuels like wood, dung and crop residues. The use of cleaner fuel lowers indoor air pollution, leading to improved respiratory health, particularly among women and children who are traditionally more exposed to household smoke.

(ii) Households in rural areas, especially those in remote locations, often spend a significant portion of their time and energy in collecting traditional cooking fuels. LPG has reduced drudgery and the time spent on cooking by women of poor households. The free time, thus, available with them can be utilized in multiple spheres for enhanced economic productivity.

(iii) Transition from biomass and traditional fuels to LPG reduces the dependency on wood and other biomass for cooking purposes, leading to a decrease in deforestation and environmental degradation. This benefits not only the households but also contributes to broader environmental conservation efforts.

(iv) With improved cooking facilities, there is a potential positive impact on nutrition. Families may find it easier to cook a variety of nutritious meals, contributing to better overall health.

National Gas Grid Expansion Accelerated to Improve Energy Access Across India

Petroleum and Natural Gas Regulatory Board (PNGRB) is the authority to grant authorization to entities to lay, build, operate and expand Natural Gas Pipelines (NGPL). With the aim to increase the availability of natural gas across the Country, PNGRB has authorized approximately 34,233 km of NGPL network which include common carrier, spur line, tie-in connectivity and dedicated pipeline across the country to various entities, out of which 25,429 km have been made operational as on June 2025. 10,459 Kms length of pipelines is under various stages of construction.

The Government have taken various measures to implement 'One Nation, One Gas Grid' which, *inter-alia*, includes approving key trunk pipelines, providing viability gap funding in low-demand areas, introducing a unified tariff, accelerating expansion of CGD network, setting up of Liquefied Natural Gas (LNG) Terminals, allowing marketing and pricing freedom with a ceiling price to gas produced from high pressure/high temperature areas, deep water & ultra-deep water and from coal seams, Sustainable Alternative Towards Affordable Transportation (SATAT) initiative to promote Bio-CNG, etc.

Government continually reviews and coordinates with the concerned State Governments and executing agencies to resolve the challenges and expedite the construction of National Gas Grid.

The expansion of gas pipeline networks offers enhanced access to clean, reliable and affordable energy, improving household convenience, reducing dependence on traditional fuels across rural areas, industrial clusters and City Gas Distribution (CGD) networks. In industrial areas, assured gas supply at competitive prices strengthens manufacturing competitiveness, attracts new investments, reduces operational costs

and fosters job creation. Within CGD networks, the availability of CNG and PNG promotes cleaner mobility and domestic energy usage, leading to improved air quality and greater environmental sustainability. **Govt notifies New Petroleum and Natural Gas Rules to boost investment, ease of doing biz**

The government has notified the new Petroleum and Natural Gas Rules, 2025, bringing into force a modern regulatory framework aimed at attracting investment and improving ease of doing business in the oil and gas sector.

The rules, issued under the recently approved Oilfields (Regulation and Development) Amendment Act, 2025, replace the earlier system of multiple licences with a single petroleum lease covering exploration, development and production of all hydrocarbons, including shale, according to a gazette notification.

The new framework provides lease tenures of up to 30 years, extendable for the full economic life of a field, with terms protected from adverse changes. Criminal penalties for violations have been removed and replaced with higher financial penalties of Rs 25 lakh, plus Rs 10 lakh per day for continuing breaches. The rules also allow lessees to share infrastructure to improve operational efficiency.

Environmental provisions have mandated time-bound plans for zero gas flaring and reduced greenhouse emissions.

Applications for petroleum leases must now be decided within 180 days, and disputes may be resolved through an expedited mechanism, including a neutral arbitration seat for foreign investors.

The Oil Industry Safety Directorate has been designated as the competent authority for offshore safety, audits and standard-setting in exploration and production operations.

Commenting on the move, Oil Minister Hardeep Singh Puri said, "In a landmark moment today, the Petroleum and Natural Gas Rules, 2025, have been amended to offer ease of business and operations".

With a broader spectrum of rights under one petroleum lease, the lessees will have the right to carry out all types of mineral oil operations under one petroleum lease, he said, adding that they may undertake decarbonisation and comprehensive energy projects at oilfields.

Application for the grant of a petroleum lease will be decided within 180 days. Long-term leases of up to 30 years may be granted and may be extended up to the economic life of the field, allowing the lessee to make a planned investment decision.

Lessees will make an annual declaration to the government of the installed, utilised and excess capacity of the infrastructure facilities owned by it, he said.

The new rules permit lessees to jointly develop or share infrastructure facilities by mutual agreement.

Seat of arbitration of lease and contractual disputes, where all lessees or contractors are companies incorporated in India, will be New Delhi.

Where any member is a foreign company as defined in the Companies Act, a neutral seat of arbitration may be opted for.

Rules require NOCs to promptly notify all existing and new discoveries, submit field development plans within prescribed time limits, obtain central government approval for development areas, and regularly report development and production activities.

Vedanta Group chairman Anil Agarwal said, "Notifying the landmark reforms to India's oil and gas regulatory framework" is "a truly historic development".

"The world has long recognised India's vast untapped hydrocarbon potential, and these new rules finally create the environment needed to unlock it," he said.

"India produces some of the most affordable oil and gas globally. These reforms will directly benefit consumers - especially the poorest - by enabling greater domestic production and reducing dependence on imports."

He said this is the kind of bold, inclusive policy that transformed the United States from a major importer into an energy surplus nation.

"I never imagined I would witness such a reform in my lifetime. Our energy security is both our greatest challenge and our greatest opportunity. With these changes, I am confident that India can produce at least 50 per cent of its energy domestically."

Energy retail outlets double to over 1 lakh by 2025: Hardeep Singh Puri

The number of petrol pumps and gas stations in India has almost doubled over the last decade, rising from 51,870 retail outlets in 2014 to more than one lakh by 2025, Union Minister for Petroleum and Natural Gas Hardeep Singh Puri.

The minister shared the information on social media platform X after a meeting of the Consultative Committee of Members of Parliament of the Ministry of Petroleum and Natural Gas, which discussed diversification and energy transition.

Highlighting the transformation of India’s energy sector over the past ten years, Puri said the country has witnessed significant improvements in infrastructure, diversification of energy sources, and a steady shift towards cleaner energy. Under the leadership of Prime Minister Narendra Modi, he added, the sector has become more resilient and future-ready.

Puri also noted that the number of LPG distributors has increased by 127 per cent, while city gas distribution networks have expanded to cover the entire mainland of the country, bringing piped natural gas to households across regions.

“India today stands proud as the fourth-largest refiner globally, with natural gas pipeline length increasing to 25,429 kilometres and LNG capacity more than doubling to 52.7 million metric tonnes per annum,” the minister said, adding that these measures are crucial to ensuring energy security for the nation.

According to him, India has also strengthened its energy security by diversifying sources of crude oil imports. The country now procures crude oil from around 40 nations and has long-term gas supply agreements with 15 countries. In the upstream sector, the government has opened more than one million square kilometres for oil and gas exploration.

The consultative committee appreciated progress made in the country's energy transition initiatives, including achieving 19.24 per cent ethanol blending, commissioning 170 compressed biogas plants, setting up green hydrogen projects by public sector undertakings, and the production of India's first ISCC CORSIA-certified sustainable aviation fuel by Indian Oil Corporation.

"These steps reflect India's commitment to building an energy sector that is affordable, sustainable and self-reliant," Puri said.

Government Enhanced Natural Gas Availability to Support Power Generation

Government have taken various measures to enhance the availability of natural gas for power generation which, *inter-alia*, includes expansion of National Gas Grid to connect domestic gas sources as well as Liquefied Natural Gas (LNG) terminals to the power plants, introducing a unified tariff, setting up of LNG Terminals, allowing the domestic gas producers who have been granted pricing and marketing freedom to sell domestic gas up to 500 mmscm or 10% of annual production from their contract area whichever is higher, per year through gas exchanges authorized by PNGRB, etc.

Further, Government have placed Liquefied Natural Gas (LNG) under the Open General Licence (OGL) category. This allows buyers to freely import LNG as per their requirement on mutually agreed commercial terms with suppliers. Government have also made provisions for Nil customs duty on import of LNG, if it is used for generation of electricity by a generating company as defined in section 2(28) of Electricity Act, 2003 (36 of 2003) to supply electrical energy or to engage in the business of supplying electrical energy to the grid. Gas based power plants are free to import the LNG, generate power and sell it to customers.

Government have taken multiple steps to increase share of Natural Gas in primary energy mix. These, *inter-alia*, includes expansion of National Gas Grid Pipeline, expansion of City Gas Distribution (CGD) network, setting up of Liquefied Natural Gas (LNG) Terminals, allocation of domestic gas to Compressed Natural Gas (Transport) / Piped Natural Gas (Domestic) CNG(T)/PNG(D) as priority sector, allowing marketing and pricing freedom with a ceiling price to gas produced from high pressure/high temperature areas, deep water & ultra-deep water and from coal seams, Sustainable Alternative Towards Affordable Transportation (SATAT) initiatives to promote CBG etc..

For increasing domestic gas production, Government of India has notified Hydrocarbon Exploration and Licensing Policy (HELP) for the award of exploration acreages shifting from Production Sharing mechanism to Revenue Sharing mechanism. Government further notified policy framework for early monetization of Coal Bed Methane (CBM) (2017), Discovered Small Field policy (2018), policy reforms in 2019, where many of the processes and approvals were relaxed to promote "Ease of Doing Business", Revenue Share from Category II & III type of basins were removed, except for windfall gains, 7 years Royalty Holiday for Deep & Ultra-deep blocks, concessional Royalty Rates for Deepwater and for ultra-deep water blocks, and

fiscal incentives have been provided for early monetization of fields along with Marketing and Pricing freedom for natural gas. Further, Government in 2020 allowed market price discovery through e-bidding system and in 2023 permitted a premium of 20% over the Administered Price Mechanism prices for gas produced from new well and well interventions of Oil and Natural Gas Corporation Limited & Oil India Limited from their nomination fields.

Ministry of Power has informed that existing Gas-Based Plants (GBPs) in the country remain underutilized due to the high cost of electricity generation. To meet increased demand during crunch periods, the Ministry of Power implemented Schemes for procurement of power from GBPs during peak demand periods in 2023, 2024 and 2025 through competitive bidding. Selected GBPs have been provided with a Minimum Off-take Guarantee (MGO). During the crunch periods of 2023 (April–June 2023), 2024 (March–June 2024) and 2025 (March–October 2025), energy procured from the selected GBPs under these schemes was 317 MU, 482 MU and 1,477 MU respectively. This Scheme, inter-alia, helped in improving the utilization of gas-based assets, provided additional peak support to the grid, and contributed to maintaining system reliability during periods of elevated demand. The PLF of gas-based power plants has increased from 11.4% during 2022-23 to about 15 % during 2024-25.

In addition, Ministry of Power have issued directions under Section 11 of the Electricity Act for maximization of generation from gas-based stations during the periods 26th May 2025 to 30th June 2025 and 1st May 2024 to 30th June 2024.

Policy initiatives to boost gas-based power generation and improve Plant Load Factor (PLF) of gas-based plants are expected to strengthen energy security by diversifying the energy mix and reducing reliance on coal and oil.

Shri Manohar Lal Inaugurated Commercial Operation of the first Unit of Country's Largest Hydropower Project

Shri Manohar Lal, Union Minister of Power, Housing & Urban Affairs, inaugurated the commercial operation of Unit–2 (250 MW) of the 2000 MW (8×250 MW) Subansiri Lower Hydroelectric Project through virtual mode. He stated that the commissioning of this unit is “not just a technical achievement, but a testament to years of hard work, dedication, and teamwork.” He further emphasized that the Subansiri Project stands as a symbol of India’s commitment to clean and sustainable energy, supporting North-East India’s growth, strengthening the national grid and advancing India’s ambitious Net Zero goals.

The event was also attended by Shri Pankaj Agarwal, Secretary (Power), Shri Bhupender Gupta, CMD, NHPC, and other officers of the Ministry of Power and NHPC.

Shri Pankaj Agarwal lauded NHPC’s achievement, highlighting that the Subansiri Lower Project will greatly improve energy supply in the North-East and serve as a testament to India’s commitment to state-of-the-art, sustainable power systems. He emphasized timely commissioning of the remaining units, noting that the Subansiri Project will continue to play a pivotal role in India’s transition to a Net Zero energy future while generating substantial socio-economic benefits for local communities.

Shri Bhupender Gupta, CMD, NHPC, expressed his heartfelt gratitude to the Ministry of Power, the Governments of Arunachal Pradesh and Assam, former NHPC leadership, the entire Subansiri Project team, all key stakeholders and partners for their dedicated support in making this milestone achievement possible. He further stated that the project will strengthen the national grid, support sustainable development in the North-East and provide reliable renewable energy to meet growing demand.

With the commissioning of Unit # 2, the Project is moving swiftly towards commissioning of 3 Units of 250 MW each shortly, followed by phased commissioning of the remaining four units during 2026-27. Upon full commissioning, the 2000 MW Subansiri Lower Hydroelectric Project will make a significant contribution to India's renewable energy capacity, enhance national grid resilience and usher in a new era in massive clean energy contribution.

As India's largest hydropower project, the Subansiri Lower Project comprises 8 units of 250 MW each and is designed as a Run-of-the-River scheme with small pondage, diverting water through eight Head Race Tunnels (HRTs) to generate 7,422 million units (MU) of renewable electricity annually contributing significantly to India's green energy future. The project features the largest dam in North-East India, a 116-metre-high concrete gravity dam, which not only strengthens regional infrastructure and grid resilience but also enhances flood moderation and water management in the Subansiri River basin.

The Subansiri Lower H.E. Project exemplifies engineering excellence, featuring India's heaviest hydro generator rotors, largest stators and biggest main inlet valves, along with innovations such as the nation's largest aggregate processing plants, highest-capacity batching plant and first-ever use of Rotec's Tower Belt for dam concreting in India. As the first cascaded dam on the Subansiri River, it provides flood moderation with a 442 million cubic metre flood cushion. With a gross reservoir storage of 1,365 million cubic metres at FRL, about one-third remains empty during floods to absorb excess water and protect downstream communities.

NHPC has implemented extensive riverbank protection and erosion control measures along the Subansiri River, completing works up to 30 km downstream and extending them up to 60 km. with an investment of about ₹522 crore. This has effectively stabilized the riverbanks for over five years. In addition, NHPC is supporting downstream community development through livelihood programs in piggery, sericulture and handloom, developed with IRMA. These initiatives, now in production, benefit around 5,000 women farmers and promote sustainable socio-economic development in the region.

Apart from supplying electricity to 16 beneficiary states across India, the Subansiri Lower H.E. Project will provide free power allocations to Arunachal Pradesh and Assam, while the North-East region will receive 1,000 MW from the project, significantly strengthening regional energy availability.

The project has generated strong socio-economic benefits for the region by engaging around 7,000 local people daily during its construction phase and creating numerous direct and indirect jobs through contractors, service providers and local markets. With the commissioning of the project and the availability of continuous power, new small-scale industries are expected to emerge, further expanding employment and business opportunities while helping reduce outmigration. Additionally, the project is

expected to boost tourism and enhance river navigation, contributing to long-term regional development and prosperity.

NHPC has invested around ₹155 crore in CSR initiatives across Arunachal Pradesh and Assam. Key works include constructing 3,129 toilets under Swachh Vidyalaya Abhiyaan, establishing a Vivekananda Kendra Vidyalaya in Dollungmukh serving 250 students, providing safe drinking water facilities at 1,841 locations and RO water with sanitation at 9 locations and executing multiple rural development projects such as community halls, meeting halls, causeways and water supply schemes in nearby areas.

Framework for Carbon Credit Trading Scheme (CCTS)

The framework for the Indian Carbon Market under the Carbon Credit Trading Scheme (CCTS) has been formulated. The institutional structure comprises a National Steering Committee co-chaired by the Secretaries of the Ministry of Power and the Ministry of Environment, Forest and Climate Change, with Grid India functioning as the Registry and the Bureau of Energy Efficiency (BEE) serving as the Administrator.

The CCTS operates through two mechanisms: The Compliance Mechanism and the Offset Mechanism.

Under the Compliance Mechanism, emission-intensive industries designated as Obligated Entities are required to meet assigned Greenhouse Gas Emission Intensity (GEI) targets, and entities that outperform their targets are eligible for Carbon Credit Certificates.

Under the Offset Mechanism, Non-Obligated Entities may voluntarily register projects that reduce, remove or avoid greenhouse gas emissions for the purpose of seeking issuance of Carbon Credit Certificates.

The sectors transitioned from the Perform, Achieve and Trade (PAT) scheme to the Compliance Mechanism under the CCTS include aluminium, cement, chlor-alkali, petrochemicals, petroleum refineries, pulp and paper, and textiles. Thermal power plants have not been transitioned from the PAT scheme to the CCTS Compliance Mechanism.

Smart Metering Adoption: 4.76 Crore Smart Meters Installed

Under Revamped Distribution Sector Scheme (RDSS), 20.33 crore smart meters have been sanctioned based on the proposal submitted by the States. In addition, many States have installed smart meters under the State schemes or externally aided projects. Till date 4.76 crore smart meters have been installed in the country under various schemes.

Under RDSS, smart metering is being carried out through Public Private Partnership (PPP) in TOTEX (i.e total expenditure which is sum of capital expenditure and operational expenditure) mode. The Advanced Metering Infrastructure Service Provider (AMISP) is responsible for supplying, maintaining and operating the metering infrastructure post installation.

To promote indigenization in Smart Meters, this Ministry, after deliberations with stakeholders, has taken various steps:

1. In July 2023 smart meters were included in the Annexure I of Public Procurement (Preference to Make in India), Order.
2. Presently, the minimum local content in smart meters is to be 60%.
3. In addition, since the Head End System (HES) and Meter Data Management (MDM) System are vital components of the Advanced Metering Infrastructure, 100% MLC in MDM and HES was mandated w.e.f. 01.01.2025.

Several key initiatives have been undertaken for smart monitoring of electricity consumption at all levels. These include:

i. Smart meters provide consumers with real-time data on their energy usage.

ii. The data generated from smart meters at the system level including Feeders and Distribution Transformers and consumer level gives complete insights regarding energy accounting and is being used by the Distribution utilities for conducting energy audits.

iii. The shift to prepaid smart meters allows for better budgeting for consumers and improved cash flow & billing efficiency for utilities.

iv. Monitoring at the substation and grid level involves automation and integration of IT systems to improve reliability and efficiency. SCADA (Supervisory Control and Data Acquisition)/ DMS (Distribution Management System) systems have been sanctioned under RDSS which help in reducing outages and improving response times to faults through remote monitoring and control, thus improving the efficiency and reliability of power distribution networks.

v. Funds have been allocated under the scheme for modernisation works including strengthening and upgrading distribution infrastructure, including substations, transmission lines, and underground cabling. The digitalization and modernization of the grid is essential for integration of renewable energy sources into the Distribution network, thereby facilitating the clean energy transition in the country.

vi. Further, the Ministry is also actively supporting the Technology Solution Providers (TSPs), including startups to develop and scale up solutions that leverage the data from smart meters for various use under RDSS.

Power Minister Sh. Manohar Lal Commenced COD of 250 MW 3rd Unit of Tehri Variable Speed PSP

THDC India Limited (THDCIL) has commenced the Commercial Operation Date (COD) of the 3rd Unit (250 MW) of the 1000 MW Tehri Variable Speed Pumped Storage Plant (PSP), making it the largest PSP of its kind by a Central Public Sector Enterprise. Sh. Manohar Lal, Minister of Power, commenced the COD virtually from New Delhi.

Speaking on the occasion, Sh. Manohar Lal said, "Today, I officially commenced the Commercial Operation Date (COD) process of the 3rd Unit (250 MW) of the 1000 MW Variable Speed Pumped Storage Plant (PSP) at Tehri, Uttarakhand. This landmark achievement marks India's first Variable Speed PSP and strengthens our clean energy transition, supporting the Hon'ble Prime Minister's vision of a Viksit Bharat by 2047." He emphasized the critical role of PSPs in ensuring reliable power supply and grid stability, especially with rising renewable energy integration.

Minister of State for Power, Sh. Shripad Y Naik, highlighted THDCIL's leadership in pumped storage and its contribution to India's energy security. Further Sh. Pankaj Agarwal, Secretary, Ministry of Power, also congratulated THDCIL for commissioning major projects this year.

India's Atmanirbharta in Defence Emerges as a Measurable and Credible Reality: Shripad Naik

Union Minister of State for Power and New & Renewable Energy, Shri Shripad Yesso Naik, while addressing a press conference in New Delhi said that India's journey towards Atmanirbharta in defence has been decisively shaped by the visionary and resolute leadership of Prime Minister Shri Narendra Modi, whose clear articulation that national security, economic strength and technological sovereignty are deeply interconnected has transformed defence manufacturing from a strategic necessity into a national mission.

The Minister said that the country has moved with confidence from being a major importer of defence equipment to a nation that designs, develops, manufactures and increasingly exports advanced defence systems, firmly positioning defence self-reliance as a cornerstone of India's rise as a strong, secure and self-assured global power.

He added that the defence sector has undergone a structural transformation from import dependence to indigenous capability, anchored in the vision of Atmanirbhar Bharat and Make in India – Make for the World. In recognition of the momentum achieved, 2025 has been declared the 'Year of Reforms' in the Ministry of Defence, marking accelerated progress in defence indigenisation alongside enhanced operational preparedness of the Armed Forces.

Shri Naik noted that defence production reached an all-time high of ₹1.54 lakh crore in FY 2024–25, rising from ₹46,429 crore in 2014–15, demonstrating the scale, depth and maturity of India's indigenous defence manufacturing base. Defence exports surged to a record ₹23,622 crore in FY 2024–25, compared to less than ₹1,000 crore in 2014, underscoring India's emergence as a credible and competitive global defence supplier. India has supplied a wide spectrum of defence products—including ammunition, arms, sub-systems, complete systems and critical components—to around 80 countries, reaffirming its role as a reliable partner in the global defence supply chain.

He further said that the private sector's contribution has risen to nearly 23% of total defence production, reflecting growing competitiveness, innovation and confidence of Indian industry, while Defence Public Sector Undertakings continue to play a critical role, accounting for about 77% of total defence production within a more accountable and performance-oriented framework. Five Positive Indigenisation Lists, covering over 5,500 items, have been notified, with more than 3,000 items already indigenised, decisively reducing import dependence and strengthening domestic capability.

The Minister observed that indigenous platforms such as LCA Tejas, LCH Prachand, ATAGS, Akash missile systems, radars, corvettes, armoured vehicles and drones are significantly enhancing the operational readiness and combat capability of the Armed Forces. Operation Sindoor, executed on the strength of indigenous equipment and systems, marked a milestone in India's journey towards technological self-reliance in drone warfare, layered air defence and electronic warfare, clearly demonstrating the operational relevance of Atmanirbharta.

Shri Naik said that Mission Sudarshan Chakra, announced by Prime Minister Modi from the ramparts of the Red Fort on Independence Day 2025, aims at neutralising enemy defence infiltrations and strengthening India's offensive and protective capabilities. Inspired by the legendary Sudarshan Chakra of Shri Krishna, the mission symbolises speed, precision and decisive power, underscoring India's commitment to strategic autonomy and rapid, effective response. Under this mission, an expanded nationwide security shield is envisaged, with enhanced protection of public spaces and critical areas by 2035, reflecting a long-term, self-reliant approach to national security.

He informed that defence Industrial Corridors in Uttar Pradesh and Tamil Nadu have together attracted investments of over ₹9,145 crore, with 289 MoUs signed, unlocking ₹66,423 crore in potential opportunities. The Defence Procurement Manual 2025, launched in October 2025, simplifies revenue procurement of goods and services worth nearly ₹1 lakh crore, enhancing transparency, uniformity and participation of domestic industry. A comprehensive review of the Defence Acquisition Procedure 2020 has also been initiated to align procurement with national priorities, promote indigenous design and facilitate technology infusion.

Talking about allocation in the Union Budget 2025–26, he informed that ₹6.81 lakh crore has been allotted to the Ministry of Defence. This includes ₹1.80 lakh crore allocated for capital outlay, with 75% of the modernisation budget earmarked for domestic procurement, providing strong and sustained demand for Indian manufacturers. Innovations for Defence Excellence has emerged as a key enabler of defence innovation by integrating start-ups, MSMEs and academia into the defence ecosystem, while DRDO continues to drive innovation, supported by a ₹500 crore corpus under the Technology Development Fund and 15 Defence Industry–Academia Centres of Excellence. The restructuring of the Ordnance Factory Board into seven DPSUs has further enhanced autonomy, efficiency and export orientation of legacy defence manufacturing.

With over 16,000 MSMEs now part of the defence ecosystem, Atmanirbharta has become a broad-based national endeavour. The Government has set a clear vision of achieving ₹3 lakh crore defence production and ₹50,000 crore defence exports by 2029, positioning India as a global defence manufacturing hub.

While concluding, the Minister said that Atmanirbharta in defence today is not an aspiration; it is a measurable and credible reality, reflected in rising production, expanding exports and proven operational capability. As India advances towards becoming a global defence manufacturing hub, this journey will continue to strengthen the Armed Forces, empower Indian industry and reinforce India's position as a confident, capable and reliable partner in the global security architecture.

India Adds 31.2 GW Non-Fossil Capacity in FY 25-26 till October 2025

India has already achieved 50% of its installed electricity capacity from non-fossil fuel sources, five years ahead of the target set under its Nationally Determined Contributions to the Paris Agreement. As of 31 October 2025, the installed capacity from non-fossil sources stands at about 259 GW, with 31.2 GW added in the current financial year up to October 2025.

As on 31st October, 2025, Renewable Energy Implementing Agencies (REIAs) of the Ministry of New & Renewable Energy (MNRE), namely Solar Energy Corporation of India Limited (SECI), NTPC Limited (NTPC), NHPC Limited (NHPC) and SJVN Limited (SJVN), have issued Letters of Award (LoAs) of 67,554 MW in respect of renewable power procurement tenders issued by them since April 2023 and no cancellations have been made after issuance of Letters of Award.

States are also issuing renewable power procurement tenders and renewable power capacity is also being added in commercial and industrial sectors through Green Energy Open Access/ Captive route. Thus, capacity addition of renewable energy is progressing through multiple pathways and not necessarily only through REIA led bids.

With the declining cost of solar-plus-storage and dispatchable renewable power, there is a growing preference among distribution companies and end procurers for such solutions. This shift has been accompanied by a reduced demand for plain solar power. Solar-plus-storage configurations are also being preferred over wind-solar hybrid projects, particularly due to their ability to supply power during peak demand hours. Accordingly, the Government has sensitized the REIAs to move from plain solar tenders to tenders of Solar with Energy Storage, tenders with configuration to supply renewable power during peak hours and tenders with configuration to supply Firm and Dispatchable Renewable Energy (FDRE).

To facilitate the further execution of PPAs in respect of bids issued by REIAs, the Government has undertaken several proactive measures. These include urging States to comply with the Renewable Consumption Obligation (RCO) under the Energy Conservation Act, and advising Renewable Energy Implementing Agencies (REIAs) to aggregate demand from DISCOMs and other consumers before designing and issuing tenders. Regional workshops have been organized with major renewable energy-procuring States to address implementation challenges and accelerate PPA signing.

Central Electricity Authority (CEA) prepares the transmission plan in advance based on the Renewable Energy (RE) potential declared by the Ministry of New & Renewable Energy (MNRE) to provide a clear visibility of transmission system to the RE developers. The transmission system is implemented in phases commensurate with generation capacity addition to optimize the transmission system.

Around 47.2 GW of Battery Energy Storage System (BESS) has been considered for planning of transmission system upto 2032. Deployment of BESS enables peak shifting, reduces network congestion and improves utilisation of transmission assets, thereby optimising overall transmission system.

As per Central Electricity Regulatory Commission (Connectivity and General Network Access to the inter-State Transmission System) (Third Amendment) Regulations, 2025, connectivity is to be granted for solar and non-solar hours. This will further help in efficient utilization of the transmission system. This will also

enable integration of additional RE with co-located BESS to the grid without the requirement of additional transmission infrastructure.

PM Surya Ghar Reached 23.96 Lakh Households; Nearly One-Fourth of Target

Against the target of covering one crore households in the residential sector with installation of rooftop solar systems under the PM Surya Ghar: Muft Bijli Yojana (PMSG: MBY), by FY 2026-27, a total of 23,96,497 households have been installed rooftop solar systems, which is around 23.96 per cent of the target.

The PMSG: MBY is demand driven scheme, wherein all residential consumers in the country having grid connected electricity connection of the local DISCOM can avail the benefits of the scheme by applying on the National Portal of the scheme.

The scheme is progressing well and as on 03.12.2025, a total of 53,54,099 applications have been received on the National Portal and 19,17,698 rooftop solar systems have been installed across the country covering 23,96,497 households.

Coverage of 35 lakh households has been targeted for FY 2025-26 under the scheme and the Government has taken following steps to accelerate the implementation of the scheme across the country:

- Online process from registration to disbursal of subsidy directly into the bank account of the residential consumer through National Portal.
- Availability of collateral free loan from nationalized banks at concessional interest rate of repo-rate plus 50 bps i.e. 6% per annum for the present with tenure of 10 years.
- Simplified the regulatory approval process by waiving technical feasibility requirement and introducing auto load enhancement upto 10 kW.
- Included RESCO/ Utility led Aggregation (ULA) Models
- Net metering agreement has been made part of application in the National Portal.
- Simplified process for registration of vendors to ensure sufficient and qualified vendors are available.
- Capacity building and training programmes being conducted for creating skilled manpower.
- Creating awareness about the scheme, through awareness and outreach program such as print advertising in leading newspapers, TV commercials campaigns, Radio campaigns across FM stations including regional channels, etc., in the country.
- Regular monitoring of the progress of the scheme at different levels including with states/DISCOMs.
- Conducting regional review meetings.

- Established grievance redressal mechanism for timely resolution of grievances. A Call Centre with telephone number 15555 is operational in 12 languages.

India Advances Green Hydrogen Mobility with NISE-Toyota Fuel Cell Vehicle Pilot

Union Minister for New & Renewable Energy, Shri Pralhad Joshi, launched the Pilot Project for field trails on the Use of Hydrogen in the Mobility Sector, describing it as a major milestone in India's clean energy advancements.

Green Hydrogen Positioned as the future fuel for India's Energy Systems

The Minister underlined that green hydrogen is emerging globally as the backbone of future energy systems. He said the collaboration, along with the handover of Toyota's Mirai hydrogen fuel cell electric vehicle (FCEV) to NISE for real-world testing, brings innovation, industry expertise and scientific rigour to advance India's clean energy transition. He noted that such collaborations strengthen "Energy Aatma Nirbharta", promote innovative low-emission transportation solutions, and align with India's Panchamrit climate commitments, reaffirming the Government's confidence that green hydrogen will drive India's energy economy in the coming decades.

Calling the introduction of Toyota's 'Mirai' fuel cell electric vehicle (FCEV) "a new chapter for sustainable mobility," the Minister, said the name *Mirai*, meaning "Future" in Japanese, symbolises India's aspiration for a clean, green and sustainable mobility ecosystem.

NISE (National Institute for Solar Energy) to Undertake Comprehensive Real-World Evaluation in Indian conditions

Under the MoU, NISE will conduct an extensive assessment of the FCEV Mirai in India's diverse road conditions, including heat, dust, traffic congestion and varied terrain. The Minister said the testing for next 2 years, will generate critical insights to scale up hydrogen mobility nationwide while building awareness, confidence and technical capability among industry, academia and policymakers. He highlighted that hydrogen fuel cell vehicles are clean, silent and emission-free, emitting only water, and that fuel cell technologies are increasingly powering cars, buses, trucks, trains, ships and stationary power systems worldwide.

Shri Joshi said that by personally driving the hydrogen vehicle, he wish to send a clear message that hydrogen mobility is ready and well-suited for Indian conditions. He commended Toyota Kirloskar Motor (TKM) for its commitment to carbon neutrality and appreciated NISE for its leadership in advancing India's clean energy ambitions. **"**With this vehicle, we are launching not just an MoU but confidence, cooperation and commitment to a clean and sustainable future" the Minister said.

Speaking at the occasion, Minister of State for New & Renewable Energy, Shri Shripad Yesso Naik said that this initiative marks a significant step towards India's clean, green, and self-reliant energy future. He noted that under the leadership of Prime Minister Shri Narendra Modi, India has made unprecedented progress in Energy Transition, including the launch of the National Green Hydrogen Mission in January 2023. The Minister highlighted that real-world testing of Fuel Cell Electric Vehicle (FCEV) technology such as the

'Toyota Mirai' demonstrates India's rapid movement from policy to experimentation and further towards commercialization of hydrogen-based mobility solutions.

Shri Naik commended the strong partnership between industry, research institutions, and government in advancing hydrogen technologies under the National Green Hydrogen Mission, and emphasized that NISE's assessment of the Mirai vehicle under Indian road and climatic conditions will generate valuable insights for future scale-up. He expressed confidence that the pilot project will contribute to the wider adoption of hydrogen-based clean transportation, improved air quality, and sustainable development across the country. The Minister congratulated Toyota Kirloskar Motor for its continued trust in India's clean energy ecosystem and appreciated NISE for undertaking this important responsibility, extending his best wishes for the successful implementation of the initiative.

Mr. Vikram Gulati, Country Head and Executive Vice President, Corporate Affairs and Governance, Toyota Kirloskar Motor stated, "This partnership with the National Institute of Solar Energy (NISE) and the handover of the 'Toyota Mirai' for testing & Trails, reaffirm our dedication to supporting India's Green Hydrogen Mission and accelerating the nation's transition toward future mobility that is powered by green & indigenous energy sources. We believe hydrogen fuel-cell technology, alongside other sustainable public technologies, will play a pivotal role in helping India achieve its net-zero commitments and energy independence objectives." Shri Santosh Kumar Sarangi, Secretary MNRE, Dr Mohammad Rihan, Director General, National Institute of Solar Energy and Shri Abhay Bakre, Mission Director, National Green Hydrogen Mission also attended the event.

Cabinet approved CoalSETU window: Auction of coal linkages for diverse industrial uses and exports, ensuring fair access and optimal resource utilisation

The Union Cabinet Committee on Economic Affairs chaired by the Prime Minister Shri Narendra Modi approved the Policy for Auction of Coal Linkage for Seamless, Efficient & Transparent Utilisation (CoalSETU) by creation of new window named "CoalSETU window" in the NRS Linkage Policy to utilise coal for any industrial use and export. The new policy adds to the series of coal sector reforms being undertaken by the Government.

The Policy will allow allocation of coal linkages on auction basis on long-term for any industrial use and export by adding a separate window named CoalSETU in the NRS (Non-Regulated Sector) Linkage Auction Policy of 2016 wherein any domestic buyer requiring coal can participate in the linkage auction. The coking coal shall not be offered under this window.

The existing policy for auction of coal linkages for the NRS provides for allocation of all fresh coal linkages to NRS viz. Cement, Steel (Coking), Sponge Iron, Aluminium, and Others [excluding Fertilizer (Urea)] including their Captive Power Plants (CPPs) to be auction based. As per the present policy of NRS Linkage, the sub-sectors are for specified end users only.

Looking at the current & future market dynamics and for the purpose of ease of doing business and for accelerated utilization of existing coal reserves and reduce dependence on imported coal for meeting country's energy requirement, there was a need to have a fresh look at the current arrangements of coal

supplies to the NRS, and extend the linkages in NRS to coal consumers without any end use restrictions. In line with the opening of the coal sector for commercial mining, which allowed allocation of coal blocks without any end use restrictions, this policy for auction of coal linkages for NRS has been modified for allocation of coal linkages on auction basis on long-term for any industrial use and export by adding another window/sub-sector. Traders shall not be allowed to participate in the proposed window.

The present auction of coal linkages for the specified end-user sub-sectors in NRS (Non-Regulated Sector) shall continue. The specified end-user (s), can also participate in this window.

The coal linkage obtained under this window shall be for own consumption, export of coal, or any other purpose (including coal washing) except resale in the country. Coal linkage holders will be eligible to export coal upto 50% of their coal linkage quantity. The coal linkage holders may flexibly utilize the coal obtained under this window as per their requirement amongst its Group companies. Considering the demand for washed coal, which would increase in future, the coal linkages to the Washery operators will result in increased availability of washed coal in the country and consequently reduce imports. Further, the washed coal will also find takers outside the country and therefore, the washed coal may also be used for the purpose of export.

Rajya Sabha passes SHANTI Bill 2025, after it was passed by Lok Sabha

Following the passage of The Sustainable Harnessing and Advancement of Nuclear Energy for Transforming India (SHANTI) Bill, 2025 by the Lok Sabha, Union Minister of State (Independent Charge) for Science & Technology, Earth Sciences, and Minister of State in the PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space, Dr Jitendra Singh participated in an extensive discussion on the Bill in the Rajya Sabha, clarifying key provisions, addressing concerns raised by Members, and firmly underlining that nuclear safety, national sovereignty and public accountability remain non-negotiable.

Dr Jitendra Singh explained that the Bill consolidates and rationalises provisions from the Atomic Energy Act, 1962, the Civil Liability for Nuclear Damage (CLND) Act, and now accords statutory status to the Atomic Energy Regulatory Board, making it part of the parent legislation. This, he said, strengthens regulatory oversight rather than diluting it, and reflects India's commitment to global best practices in nuclear governance.

Highlighting the changing global and technological context, Dr Jitendra Singh said that objections raised to nuclear reforms in 2010 must be viewed in the light of today's realities, where technology, safety systems and global energy demands have transformed dramatically. Concepts such as Small Modular Reactors and Bharat Small Reactors, he noted, were unimaginable fifteen years ago, but are now emerging as safe, efficient, and flexible solutions for clean, 24×7 power generation.

Addressing safety concerns, the Minister categorically stated that nuclear safety standards remain unchanged and uncompromised, governed by the same stringent principles enshrined in the Atomic Energy Act of 1962- "safety first, production next." He detailed the rigorous inspection regime, including quarterly inspections during construction, biannual inspections during operation, five-yearly licence renewals, enhanced powers to the now-statutory Atomic Energy Regulatory Board, and oversight aligned

with International Atomic Energy Agency parameters. He further reassured the House that India's nuclear plants are geographically located far from seismic fault zones and that radiation levels at Indian reactors are many times below prescribed global safety limits.

Dr Jitendra Singh also addressed public health apprehensions, stating that there is no scientific evidence of carcinogenic impact from Indian nuclear reactors. He cited radiation emission data in micro-sieverts, demonstrating that levels at facilities such as Kudankulam, Kalpakkam, Rawatbhata and Tarapur are far below permissible limits. He added that India has significantly upgraded cyber security safeguards in the nuclear sector, including encryption, secure coding, regular audits, malware filtering, and multi-layered digital protection, reflecting new-age threat preparedness.

Clarifying misconceptions about privatisation, the Minister stated that while exploration activities may involve private partners under defined conditions, uranium mining beyond specified thresholds will remain exclusively with the government. Similarly, spent fuel management will always remain under government custody, following a clearly defined, long-term storage and handling protocol. Strategic materials such as source material, fissile material and heavy water will continue to be under strict government control.

On liability and compensation, Dr Jitendra Singh explained that the Bill introduces graded liability caps to encourage participation by smaller investors without diluting victim compensation. He assured that in the event of damage exceeding operator liability limits, full compensation mechanisms are provided through government-backed funds and international conventions, ensuring that affected parties are not left unprotected. The definition of "nuclear damage" has also been expanded to explicitly include environmental damage.

The Minister highlighted the introduction of the Atomic Energy Redressal Commission, stating that it is meant to provide an additional, faster dispute-resolution mechanism for citizens, without restricting access to civil courts or higher judiciary. He rejected claims that the Bill places nuclear matters outside judicial scrutiny.

Responding to concerns on sovereignty and foreign influence, Dr Jitendra Singh asserted that India will adopt only those international best practices that suit Indian conditions, without compromising strategic autonomy or traditional strengths. He reiterated that the SHANTI Bill pertains strictly to civilian nuclear energy, with uranium enrichment levels limited to reactor requirements and completely unrelated to weapons-grade activities.

Dr Jitendra Singh also drew attention to the expanding role of nuclear science in healthcare, agriculture, food preservation, and cancer treatment, citing advances in nuclear medicine for childhood leukaemia and prostate cancer through institutions such as Tata Memorial Centre. He said liberalising research participation would accelerate innovation across these sectors.

Outlining India's long-term nuclear energy roadmap, the Minister stated that the country has already achieved nearly 9 GW of nuclear capacity, with targets of 22 GW by 2032, 47 GW by 2037, 67 GW by 2042 and 100 GW by 2047, contributing nearly 10% of India's total energy needs. He emphasised that nuclear

power will be indispensable in meeting future energy demands driven by artificial intelligence and digital infrastructure, as it provides reliable, round-the-clock clean energy unlike intermittent sources.

Concluding his address, Dr Jitendra Singh said the SHANTI Bill reflects India's confidence, scientific maturity, and readiness to lead responsibly in the global clean energy transition. He assured Members that the Government remains open to constructive inputs and will continue engaging stakeholders during rule-making, reaffirming that India's nuclear journey will be guided by safety, transparency, and national interest.

Energy Independence aligned with Self-Reliance and Geopolitical Compatibility: Dr Jitendra Singh

Energy independence is no longer a matter of choice but an economic, strategic, and geopolitical necessity, said Union Minister of State (Independent Charge) for Science & Technology and Earth Sciences Dr. Jitendra Singh, while adding that India's transition towards clean and diversified energy sources is inseparably aligned with self-reliance and geopolitical compatibility, the vision of Aatmanirbhar Bharat and India's expanding global role.

Addressing an event in Delhi, the Minister said that debates on whether to adopt green and clean energy have become redundant, as the global consensus today recognises energy transition as essential for sustainable growth, economic resilience, and geopolitical compatibility. "If India has to move forward, there is simply no alternative," he said.

Dr. Jitendra Singh said that reducing dependence on fossil fuel imports not only strengthens self-reliance but also prepares India for an inevitable global shift, as traditional energy exporters themselves are rapidly diversifying their energy portfolios. "Persisting with outdated energy models is like clinging to obsolete technology out of sentiment, tomorrow, even spare parts will not be available," he remarked.

Highlighting India's growing stature on the global stage, the Minister said the country is no longer a passive participant but a trendsetter in areas such as climate action, clean energy, and advanced technology. "India is no longer following global cues; today, other nations are looking towards India for direction," he said, citing examples from space exploration and biotechnology where Indian innovation is benefiting the global community.

Referring to India's clean energy commitments, Dr. Jitendra Singh recalled that Prime Minister Narendra Modi announced India's Net Zero target for 2070 and reiterated the government's resolve to achieve 100 GW of nuclear energy capacity by 2047. He clarified that different energy sources should not be viewed through the prism of discrimination but through suitability, reliability, and application-specific utility.

The Minister emphasized that while renewable energy will form a significant share of India's energy mix, certain sectors—such as data centres, artificial intelligence, and advanced computing, require uninterrupted, stable, 24x7 power, where nuclear energy plays a critical role. "The future lies in a hybrid energy model, where each source is deployed where it is most cost-effective and efficient," he said.

Drawing parallels from technological evolution, Dr. Jitendra Singh observed that just as Artificial Intelligence is now evolving into a balanced 'AI plus Human Intelligence' model, India's energy strategy

too will mature into an integrated framework combining renewables, nuclear power, hydrogen, and other emerging solutions.

He also highlighted the government's bold and unconventional reforms, including opening strategic sectors such as nuclear energy and space to private participation. "This government has demonstrated the courage to move beyond the status quo, enabling public-private synergy that is essential for achieving scale, speed and sustainability," he said.

Calling for greater collaboration and trust between the public and private sectors, the Minister said India must move beyond silos and mutual scepticism to build a healthy ecosystem of innovation and execution. "National progress demands collective responsibility, shared purpose and integrated action," he asserted.

Dr. Jitendra Singh concluded by stating that while the initial phase of energy transition presents challenges, India is firmly on the right path under the leadership of Prime Minister Narendra Modi. "Clean energy is no longer a subject of seminars alone; it is becoming a way of life. As stakeholders, we will adapt, innovate, and lead," he said.

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