



POLICY & ECONOMIC REPORT

OIL & GAS MARKET

November 2024

Table of Contents

Executive Summary	3
Economy in Focus.....	5
Lessons from Economics.....	23
Oil Market	25
Crude oil price – Monthly Review	25
Indian Basket Crude oil price	27
Oil production situation	27
Oil demand situation.....	28
Global petroleum product prices	29
Petroleum products consumption in India	31
Natural Gas Market.....	33
Natural Gas Price – Monthly Review.....	33
Monthly Report on Natural gas production, imports, and consumption – October 2024.....	36
Key developments in Oil & Gas sector.....	38
Key Policy developments/Significant news in Energy sector	39

List of Figures & Tables

Figure 1: Global growth developments (y-o-y % change).....	5
Figure 2: Contributions to GDP growth.....	6
Figure 3: Contributions to Headline Inflation (y-o-y % change).....	7
Figure 4: Global economic growth and the PMI	9
Figure 5: Inflation in India	14
Figure 6: India PMI	15
Figure 7: Overall Trade during October 2024	16
Figure 8: Total Trade during April- October 2024.....	17
Figure 9: Benchmark price of Brent, WTI and Dubai crude	26
Figure 10: Indian crude oil basket price in \$ per bbl.....	27
Figure 11: Refining Margins (\$/bbl)	30
Figure 12: Singapore crack Spreads vs. Dubai (\$/bbl)	30
Figure 13: Global natural gas price trends (\$/mmbtu)	34
Figure 14: Domestic natural gas price October'23–24 (\$/mmbtu).....	35
Figure 15: Domestic natural gas Gross production (Qty in MMSCM)	36
Figure 16: LNG imports (Qty in MMSCM)	37
Figure 17: Sectoral Consumption of Natural Gas (Qty in MMSCM) in April-October 2024.....	37
<hr/>	
Table 1: Trade during October 2024.....	16
Table 2: Crude oil price in November, 2024	26
Table 3: Non-DoC liquids production in 2024, mb/d	28
Table 4: World Oil demand, mb/d	29
Table 5: Singapore FOB, refined product prices (\$/bbl) in October 2024	31
Table 6: Petroleum products consumption in India, October 2024 and Year till Date (YTD) 2024	32
Table 7: Gas price, October 2024.....	34
Table 8: Gas price, GCV Basis	34

Executive Summary

According to IMF, growth in Asia and the Pacific remained robust in the first half of 2024. The growth drivers differed in both cases: as in advanced Asia, activity was heavily reliant on exports, whereas in emerging Asia, both domestic and external demand contributed to growth. In advanced Asia excluding Japan, private consumption retreated, reflecting the impact of tight monetary conditions. Growth received a welcome boost from manufacturing activity and exports, with strong demand from the United States and emerging markets. In Japan, growth in the first half of 2024 disappointed amid domestic supply disruptions, but real earnings have turned positive, and forward-looking indicators suggest that growth will return to above potential.

As far as Indian economy is concerned, according to data released by the National Statistics Office on 29th November, 2024, India's economic growth slowed to 5.4 per cent in Q2FY25, showing a significant decline from 8.1 per cent during the same period last year. The country's growth projection was 6.7 per cent in the first quarter of this financial year.

Real Gross Value Added (GVA), a core measure of economic activity, expanded by 5.6% in Q2 FY25, a slowdown from 7.7% in the corresponding period last year. Nominal GVA growth also eased to 8.1% compared to 9.3% in the same period last fiscal.

The agriculture and allied sector have bounced back by registering a growth rate of 3.5 per cent in Q2 of FY25 after sub-optimal growth rates ranging from 0.4 per cent to 2.0 per cent, observed during previous four quarters. Manufacturing grew at a sluggish 2.2%, while mining and quarrying contracted by 0.1%. Sustained domestic steel consumption drove growth in the construction sector to 7.7% in Q2. The services sector posted a robust 7.1% growth, with the trade, hotels, and transport segments registering 6.0% growth.

Year-on-year inflation rate based on All India Consumer Price Index (CPI) for the month of October, 2024 is 6.21%. Corresponding inflation rates for rural and urban are 6.68% and 5.62%, respectively. Year-on-year inflation rate based on All India Consumer Food Price Index (CFPI) number is 10.87% (Provisional) for the month of October, 2024. As compared to with 9.24 % in September 2024 and 6.61 % in October 2023. Corresponding inflation rate for rural and urban are 10.69% and 11.09%, respectively. The latest inflation print of October 2024 is beyond the RBI's upper tolerance limit of 6 per cent.

The HSBC Flash India Composite Output Index – a seasonally adjusted index that measures the month on-month change in the combined output of India's manufacturing and service sectors – rose from a final reading of 59.1 in October 2024 to 59.5 in November 2024, indicating a sharp rate of expansion that was the strongest in three months and above its long-run average. Growth ticked lower in the manufacturing industry whilst picking up in services, although the former outperformed again.

On the external front, India's forex reserves stand at \$ 657.89 billion as of 15th November, 2024 according to RBI. According to the Weekly Statistical Supplement released by the RBI, foreign currency assets (FCAs) fell by \$15.5 billion to \$569.84 billion. Gold reserves decreased by \$2 billion, bringing the total down to \$65.7 billion. The Special Drawing Rights (SDRs) dipped by \$94 million, now totaling \$18 billion, while the

reserve position in the International Monetary Fund (IMF) contracted by \$51 million, now standing at \$4.2 billion.

As far as oil and gas industry is concerned, global oil prices have eased from early-October highs, as market attention once again shifted from supply risks to concerns over the health of the global economy, sluggish oil demand and ample supply. After surging past \$80/bbl at the start of October, Brent crude oil futures fell to around \$72/bbl by mid-November as fears of an attack by Israel on Iran's energy infrastructure faded.

Hedge funds and other money managers maintained bearish stances on oil prices with mixed movements in their positions. In the first week of October, speculators covered a significant volume of short positions and increased their exposure. Sentiment then shifted and speculators reduced net long positions for three following weeks. Between the weeks of 8 October and 29 October, money managers sold an equivalent of 113 mb, leading to a 37.2% drop in combined futures and options net long positions in ICE Brent and NYMEX WTI.

The premium of light sweet crude over medium sour crude continued to show mixed movement among regions in October, following the same trends observed in the previous month. In Europe and Asia, sweet sour crude differentials narrowed further as the value of light sweet crude came under pressure due to the high availability of prompt loading barrels in the Atlantic Basin, and amid the peak of refinery maintenance season. Meanwhile, stronger fuel oil margins lent support to medium and heavy sour grades. In contrast, in the US Gulf Coast (USGC), the sweet-sour crude spread widened slightly in October as sour crude remained under pressure.

Natural gas spot prices at the US Henry Hub benchmark averaged \$2.2 per million British thermal units (MMBtu) in October 2024. Concerns about supply disruptions ebbed as production continued to return to normalcy in October, following several outages caused by the hurricane season in the Gulf of Mexico during the two previous months. According to data from the US Energy Information Administration (EIA), underground storage rose in October by 8.0%, m-o-m. Prices were further pressured by US LNG export delays, which inflated domestic supplies. Henry Hub prices were down by ~26%, y-o-y.

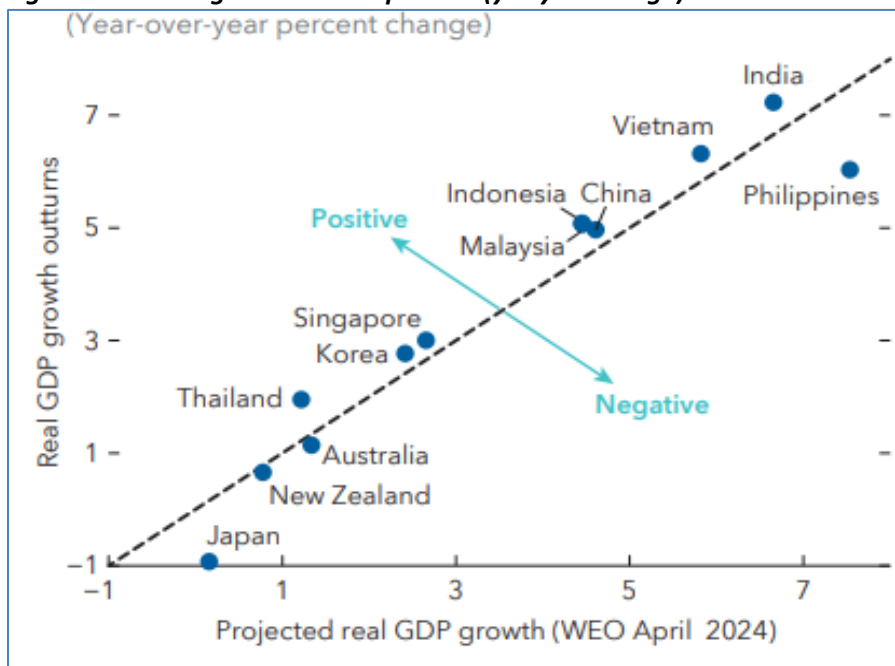
Economy in Focus

1. A snapshot of the global economy

Global economic growth

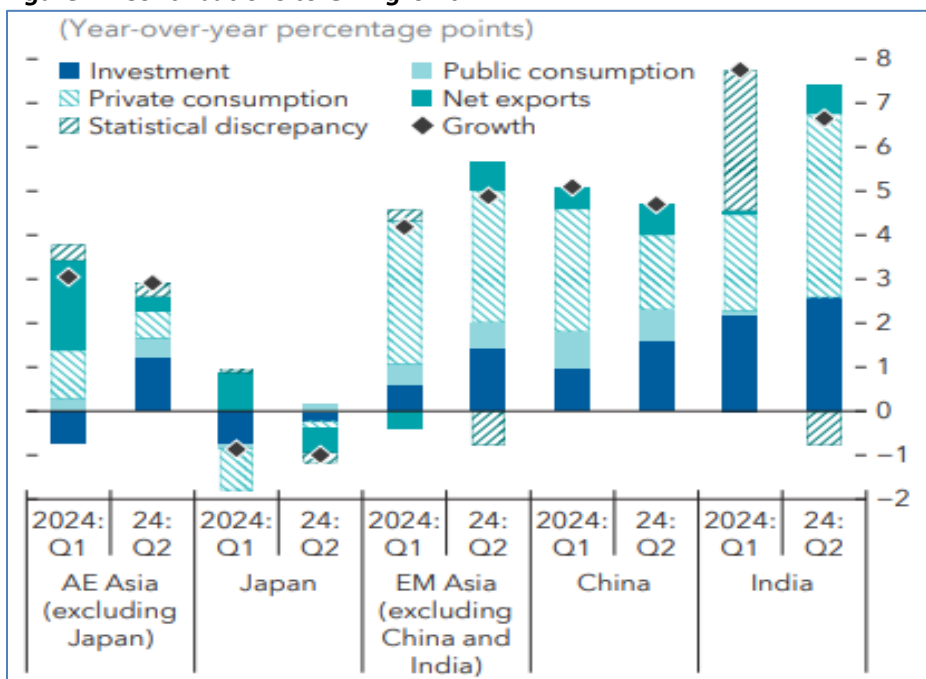
- According to IMF, growth in Asia and the Pacific remained robust in the first half of 2024. The growth drivers differed in both cases: as in advanced Asia, activity was heavily reliant on exports, whereas in emerging Asia, both domestic and external demand contributed to growth.
- In advanced Asia excluding Japan, private consumption retreated, reflecting the impact of tight monetary conditions. Growth received a welcome boost from manufacturing activity and exports, with strong demand from the United States and emerging markets.
- In Japan, growth in the first half of 2024 disappointed amid domestic supply disruptions, but real earnings have turned positive, and forward-looking indicators suggest that growth will return to above potential.

Figure 1: Global growth developments (y-o-y % change)



Source- IMF

Figure 2: Contributions to GDP growth



Source- IMF

- Growth in emerging Asia excluding China has remained broad-based. Both exports—especially for technology products—and domestic demand underpinned activity. Many emerging market economies are also benefiting from a recovery in tourism from China. In India, strong growth has been driven by investment and private consumption.

GDP growth Outlook: - According to IMF, the global GDP growth is subject to sizable economic and geopolitical uncertainties. The growth outlook for advanced & emerging market economies are as below:

Advanced Asia Economies

Growth in advanced Asia is forecast to slow to 1.6 percent in 2024 from 2.0 percent in 2023, but to recover to 1.9 percent in 2025 as domestic demand strengthens.

- Japan’s 2024 growth forecast has been revised down to 0.3 percent—a shift of -0.6 percentage point relative to April, due in part to temporary supply disruptions. Growth is expected to recover to 1.1 percent in 2025, as robust real wage growth supports private consumption.
- Korea and other advanced Asian economies are benefiting from strong global demand for technology products. Korea’s 2024 growth projection has been marked up by 0.2 percentage point relative to April to 2.5 percent. A slightly lower growth rate at 2.2 percent is expected for 2025, amid gradual rebalancing from external to domestic demand.
- In Australia and New Zealand, headwinds from tight monetary policy stances are weighing on growth. Australia’s 2024 growth rate has been marked down by 0.3 percentage point relative to April to 1.2 percent, while growth in New Zealand is projected to stall. In 2025, private demand is expected to firm as real income growth strengthens.

Emerging Market Economies

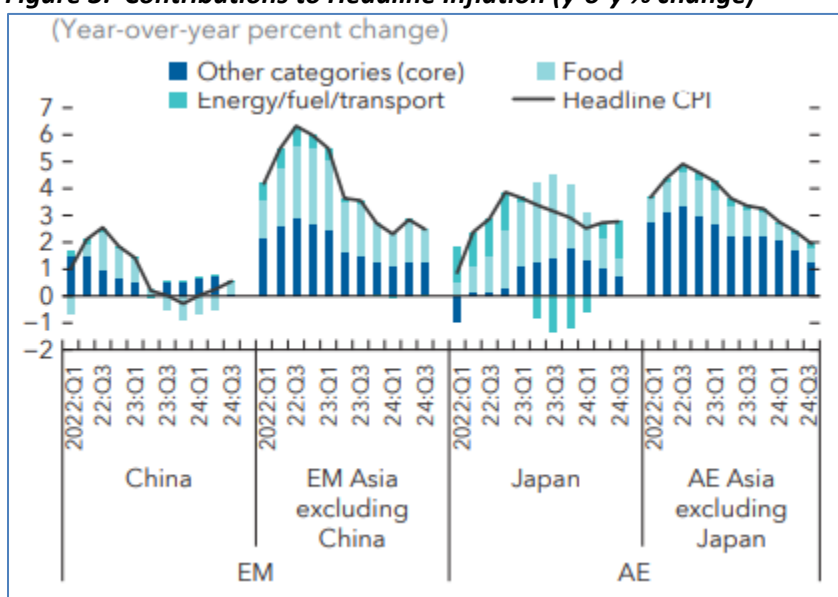
Emerging Asia’s growth has been revised up by 0.1 percentage point for 2024 and 2025, to 5.3 percent and 5.0 percent, respectively.

- Growth in 2024 for India has been revised up by 0.2 percentage point to 7.0 percent relative to the April forecast, as rural consumption is benefiting from an improved agricultural season, and as public infrastructure investment continues to expand. These trends are expected to continue in 2025. With this, India remains the world’s fastest growing major economy.
- Growth for the countries belonging to the Association of Southeast Asian Nations (ASEAN) is forecast at a robust 4.6 percent in 2024 and at 4.7 percent in 2025, largely supported by strong domestic demand and exports. Indonesia, the Philippines, and Vietnam are all projected to grow robustly, while activity in Thailand remains more subdued.

Global Inflation

- In advanced Asia excluding Japan, inflation exceeded policy targets by more than a percentage point at the beginning of the year, but the overshoot has since evaporated. Rapid disinflation for goods prices has been key, as global demand shifted from goods to services in the aftermath of the COVID-19 pandemic and fewer supply disruptions occurred.
- In Japan, headline inflation remains above target (2.5 percent in September 2024), reflecting broad-based price increases.
- In Asian emerging markets excluding China, disinflation has advanced faster than in other emerging markets around the world. Inflation rates had reached pre–COVID-19 levels already at the end of 2023 and remain at or—in some cases—even below policy targets.
- In China, consumer price inflation recovered and remained low, at 0.4 percent in September 2024.

Figure 3: Contributions to Headline Inflation (y-o-y % change)



Source- IMF

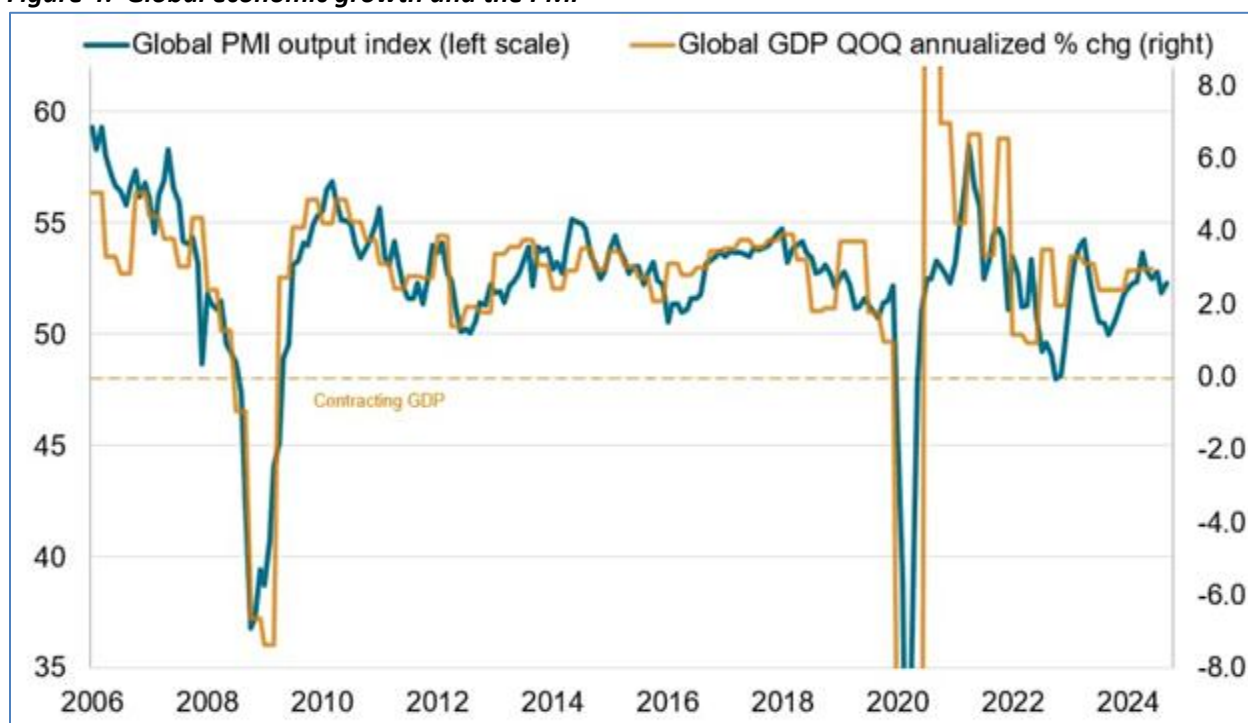
Inflation Outlook: -

- Average inflation is projected to drop to 2.2 percent in 2024, before a mild resurgence to 2.6 percent in 2025.
- In advanced Asia excluding Japan, disinflation is projected to continue as the lagged impact of past monetary tightening weighs on wage growth and reins in services inflation. For 2024, average inflation of 2.5 percent is expected, receding further to 2.3 percent in 2025.
- In Japan, after the successful exit from unconventional monetary policy, the 3.5-percent boost in nominal wages from the Shunto wage negotiations is expected to support re-anchoring inflation at the Bank of Japan's target. Inflation rates of 2.2 percent and 2.0 percent are forecast for 2024 and 2025, respectively.
- In emerging Asia, average 2024 inflation is projected at 2.1 percent—the lowest rate in almost 25 years. In 2025, inflation is expected to recover to 2.7 percent, largely reflecting the gradual normalization of inflation rates in China and Thailand, which are currently at very low levels.

Global PMI

- The J.P.Morgan Global PMI Composite Output Index - produced by S&P Global - registered 52.3 in October 2024, up from 51.9 in September 2024. The latest reading indicated the rate of global growth had picked up from the eight-month low in September but remained below the long-run average. The latest reading is broadly indicative of the global economy growing at an annualized rate of 2.6%, slowing from the 2.9% expansion in the second quarter and was also below an average GDP growth rate of 3.1% in the decade prior to the pandemic.
- The latest global economic expansion was driven by a solid rise in services activity. Detailed sector data revealed that financial services and telecommunication services led growth among the main industries tracked, with consumer services activity also further expanding.
- Manufacturing output rose only fractionally after falling for the first time this year in September. Improvements in business optimism across both manufacturing and service sectors hinted at further expansions in output in the coming months, though the improvement was focused on the United States, with sentiment cooling in Europe and across much of Asia amid concerns over geopolitics.

Figure 4: Global economic growth and the PMI



Source- S&P Global

2. OPEC cuts forecast for 2024 oil demand growth, lowers projection for 2025

OPEC cut its forecast for global oil demand growth highlighting weakness in China, India and other regions, marking the producer group's fourth consecutive downward revision in the 2024 outlook. According to OPEC, world oil demand would rise by 1.82 million barrels per day in 2024, down from growth of 1.93 million bpd forecast last month.

OPEC also cut its 2025 global demand growth estimate to 1.54 million bpd. China accounted for the bulk of the 2024 downgrade. OPEC trimmed its Chinese growth forecast to 450,000 bpd from 580,000 bpd and said diesel use in September fell year-on-year for a seventh consecutive month. According to OPEC, diesel has been under pressure from a slowdown in construction amid weak manufacturing activity, combined with the ongoing deployment of LNG-fuelled trucks

Further, forecasts on the strength of demand growth in 2024 vary widely, partly due to differences over demand from China and the pace of the world's switch to cleaner fuels.

3. Key Outcomes from COP29: Unpacking the New Global Climate Finance Goal

The UN Climate Change Conference (COP29) was held on November 11-22, 2024, in Azerbaijan. The Conference held talks focused on conquering climate change and on the Paris climate targets. The core **objectives** included:

- A **global goal for climate adaptation**: The establishment of adaptation goals should help countries that are particularly at risk to prepare for the consequences of climate change.
- The **Gender Action Plan**: This plan aims to ensure that COP resolutions are implemented in a manner consistent with gender equality.

At the U.N. climate talks in Azerbaijan, developed countries agreed to mobilize **\$300 billion for the developing nations every year**, a three-times increase over their current mandate of \$100 billion to help developing countries deal with the impacts of climate change and to help their transition to cleaner energy.

Developing countries, which had sought over \$1 trillion in assistance, said the pledge of financing was too little too late. World Meteorological Organization (WMO) supports the United Framework Convention on Climate Change (UNFCCC) process and every year participates in sessions of the Conference of the Parties (COP), by providing the latest scientific advice and information to governments, including on the state of the climate and greenhouse gas concentrations.

The WMO delegation at COP29, headed by Secretary-General Celeste Saulo, highlighted the urgency of drastic reductions in greenhouse gas emissions – and more financing to build resilience, and to strengthen early warning systems.

According to WMO’s State of the Climate Update, the year 2024 is on track to be the hottest on record and temporarily hit 1.5°C. Greenhouse gas levels are at record observed levels. Sea level rise is accelerating, glacier retreat is unprecedented, and extreme weather events have caused major loss of life and livelihoods around the world.

Key focus areas include scaling up the “Early Warnings for All” initiative to ensure comprehensive early warning coverage, and advancing Global Greenhouse Gas Watch to improve monitoring and mitigation.

Other steps forward at COP29 included: Countries agreed on the rules for an UN-backed global carbon market. This market will facilitate the trading of carbon credits, incentivizing countries to reduce emissions and invest in climate-friendly projects. They agreed to an extension of a programme centered on gender and climate change; and agreement on support for the least developed countries to carry out national adaptation plans.

UN Climate Change Executive Secretary Simon Stiell described the new finance goal agreed at COP29 as “an insurance policy for humanity.” “This deal will keep the clean energy boom growing and protect billions of lives. It will help all countries to share in the huge benefits of bold climate action: more jobs, stronger growth, cheaper and cleaner energy for all.

COP 29 also witnessed the launch of the Baku Dialogue on Water for Climate Action, a platform that promotes collaboration and initiatives that accelerate solutions for the water crisis.

Another key element of COP29 focused on countries’ national climate action plans, known as Nationally Determined Contributions (NDCs). In early 2025, countries are expected to submit updated NDCs. During

COP29, several countries shared their plans of the deadline, most notably the UAE, UK and Brazil, as well as Switzerland. Brazil's plan includes cutting emissions by 59-67% by 2035 relative to 2005 levels and reach net-zero by 2050, whilst the UK set an ambitious target to reduce emissions by at least 81% on 1990 levels by 2035.

4. Global carbon emissions hit 41.6 billion tonnes- Report

According to the Global Carbon Project's 2024 Global Carbon Budget report the global carbon emissions from fossil fuels are surging to unprecedented levels, with scientists projecting emissions will hit 41.6 billion tons by the end of 2024. This stunning rise of 2% from the previous year marks the highest point on record amid increasing demand for fossil fuel energy, primarily driven by growing economies like India and China.

One of the keys to this soaring emission rate is the rising consumption of coal, oil, and natural gas. Collectively, these fossil fuels account for over 94% of global emissions—coal at 41%, oil at 32%, and gas at 21%. The increase stems significantly from operationally-sustained power generation, especially from high-demand electrical sectors across nations. Further, Emissions from international aviation and shipping, which account for 3% of the global total, are projected to rise by 7.8% in 2024.

The report reveals significant geographical trends as well. India's emissions, representing 8% of global emissions, are projected to grow by 4.6%, partly due to the country ramping up coal-fired power generation to meet its surging electricity demand. Similarly, China's emissions representing 32% of the global total emissions, could see slight growth of about 0.2%, likely attributed to persistent reliance on coal, especially as the nation navigates increasing energy demand from both industrial and residential areas.

On the other hand, the United States, accounting for 13% of global emissions, is set to see a slight decrease of 0.6% as coal usage continues its long-term decline, though this is steadily being offset by moderate increases in natural gas consumption. Meanwhile, emissions from the European Union are expected to drop by 3.8%, thanks to significant investments and growth in renewable energies coupled with lower economic activity.

According to the Climate scientists, currently, atmospheric CO₂ levels are projected to reach 422.5 parts per million (ppm) by the end of this year, which is 52% higher than levels recorded before the industrial revolution. Such levels are alarming, as they not only continue to push global temperatures closer to the 1.5°C limit specified by the Paris Agreement but also threaten to breach it entirely within the next six years if emissions do not rapidly decline.

Despite signs of progress at the country level, such as rising proportions of renewable energy sources and electric vehicles, the report indicates much work lies ahead.

5. Wage inequality has declined in two-thirds of countries worldwide since start of 21st Century- International Labor Organization (ILO)

A new report from the International Labour Organization (ILO) reveals that wage inequality has decreased in about two-thirds of all countries since 2000. Despite this positive trend, significant wage differentials persist worldwide.

The Global Wage Report 2024-25, finds that since the early 2000's, on average, wage inequality, which compares the wages of high and low wage earners, decreased in many countries at an average rate that ranged from 0.5 to 1.7 per cent annually. The most significant decreases occurred among low-income countries where the average annual decrease ranged from 3.2 to 9.6 per cent in the past two decades.

Wage inequality is declining at a slower pace in wealthier countries, shrinking annually between 0.3 and 1.3 per cent in upper-middle-income-countries, and between 0.3 to 0.7 per cent in high-income countries. Moreover, even though wage inequality narrowed overall, decreases were more significant among wage workers at the upper end of the pay scale.

The report also finds that global wages have been growing faster than inflation in recent times. In 2023, global real wages grew by 1.8 per cent with projections reaching 2.7 per cent growth for 2024, the highest increase in more than 15 years. Such positive outcomes mark a notable recovery when compared to the negative global wage growth, of -0.9 per cent, observed in 2022, a period when high inflation rates outpaced nominal wage growth.

However, wage growth has been uneven across regions, with emerging economies experiencing stronger growth than advanced economies. While advanced G20 economies registered a decline in real wages for two consecutive years (-2.8 per cent in 2022 and -0.5 per cent in 2023), real wage growth remained positive for both years in emerging G20 economies (1.8 per cent in 2022 and 6.0 per cent in 2023).

Despite recent progress high levels of wage inequality remain a pressing issue. The report shows that globally, the lowest-paid 10 per cent of workers earn just 0.5 per cent of the global wage bill, while the highest-paid 10 per cent earn nearly 38 per cent of this wage bill. Wage inequality is the highest in low-income countries, with close to 22 per cent of wage workers there classified as low-paid.

Women and wage workers in the informal economy are more likely to be among the lowest paid. This finding reinforces the need for targeted actions to close wage and employment gaps and ensure fair wages for all wage workers.

Strengthening wage policies to reduce inequality

The study emphasizes the need for targeted policies to foster inclusive economic growth.

The report concludes that reducing wage inequality requires both strong wage policies and structural support for equitable growth. By addressing these challenges countries can make real progress towards reducing wage gaps and promoting fair, sustainable, economic growth for workers worldwide.

Key ILO recommendations include:

- **Setting wages through social dialogue:** wages should be set and adjusted through collective bargaining or agreed minimum wage systems involving governments, workers, and employers.
- **Taking an informed approach:** wage-setting should consider both the needs of workers and their families and economic factors.
- **Promoting equality, and equal opportunity of treatment and outcomes:** wage policies should support gender equality, equity, and non-discrimination.
- **Addressing root causes of low pay:** national policies should reflect each country's specific context and address the causes of low pay such as informality, low productivity.

6. Indian Economy

India's economic growth

According to data released by the National Statistics Office on 29th November, 2024, India's economic growth slowed to 5.4 per cent in Q2FY25, showing a significant decline from 8.1 per cent during the same period last year. The country's growth projection was 6.7 per cent in the first quarter of this financial year.

Real Gross Value Added (GVA), a core measure of economic activity, expanded by 5.6% in Q2 FY25, a slowdown from 7.7% in the corresponding period last year. Nominal GVA growth also eased to 8.1% compared to 9.3% in the same period last fiscal.

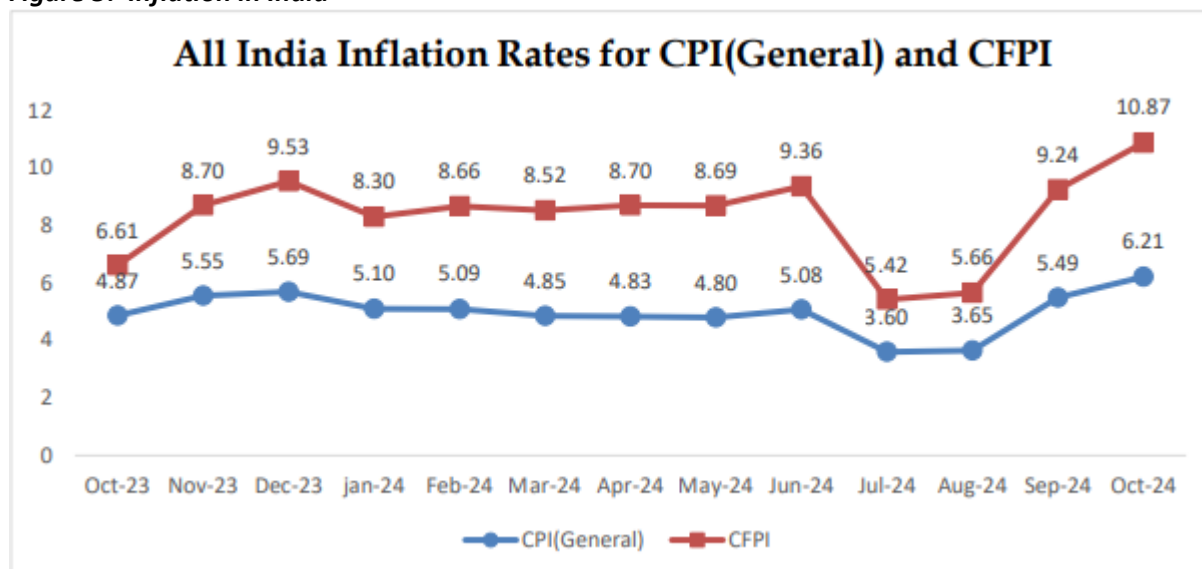
The key highlights related to sectoral performance is given below: -

- The agriculture and allied sector have bounced back by registering a growth rate of 3.5 per cent in Q2 of FY25 after sub-optimal growth rates ranging from 0.4 per cent to 2.0 per cent, observed during previous four quarters.
- Manufacturing grew at a sluggish 2.2%, while mining and quarrying contracted by 0.1%. Sustained domestic steel consumption drove growth in the construction sector to 7.7% in Q2.
- The services sector posted a robust 7.1% growth, with the trade, hotels, and transport segments registering 6.0% growth.
- Private Final Consumption Expenditure (PFCE), a key GDP driver, grew by 6.0% in Q2, up from 2.6% in the same period last year.
- Government Final Consumption Expenditure (GFCE) saw a recovery, expanding by 4.4% after several quarters of negative or minimal growth.
- The RBI has maintained its GDP growth projection for FY25 at 7.2%, down from 8.2% last fiscal. Its Monetary Policy Committee kept the benchmark repo rate unchanged at 6.50%, signaling a cautious approach amid persistent inflation.

Inflation in India

- Year-on-year inflation rate based on All India Consumer Price Index (CPI) for the month of October, 2024 is 6.21%. Corresponding inflation rates for rural and urban are 6.68% and 5.62%, respectively.
- Year-on-year inflation rate based on All India Consumer Food Price Index (CFPI) number is 10.87% (Provisional) for the month of October, 2024. As compared to with 9.24 % in September 2024 and 6.61 % in October 2023. Corresponding inflation rate for rural and urban are 10.69% and 11.09%, respectively.
- The latest inflation print of October 2024 is beyond the RBI’s upper tolerance limit of 6 per cent.
- Year-on-year Housing inflation rate for the month of October, 2024 is 2.81%. Corresponding inflation rate for the month of September, 2024 was 2.72%. The housing index is compiled for urban sector only.
- The All-India Electricity index and inflation for the month of October, 2024 are 162.5 and 5.45% respectively. Corresponding index and inflation for the month of September, 2024 was 162.4 and 5.39% respectively.
- During the month of October, 2024 significant decline in inflation is observed in Pulses & products, Eggs, Sugar & confectionery and spices subgroup. High food inflation in October, 2024 is mainly due to increase in inflation of vegetables, fruits and oils and fats.

Figure 5: Inflation in India

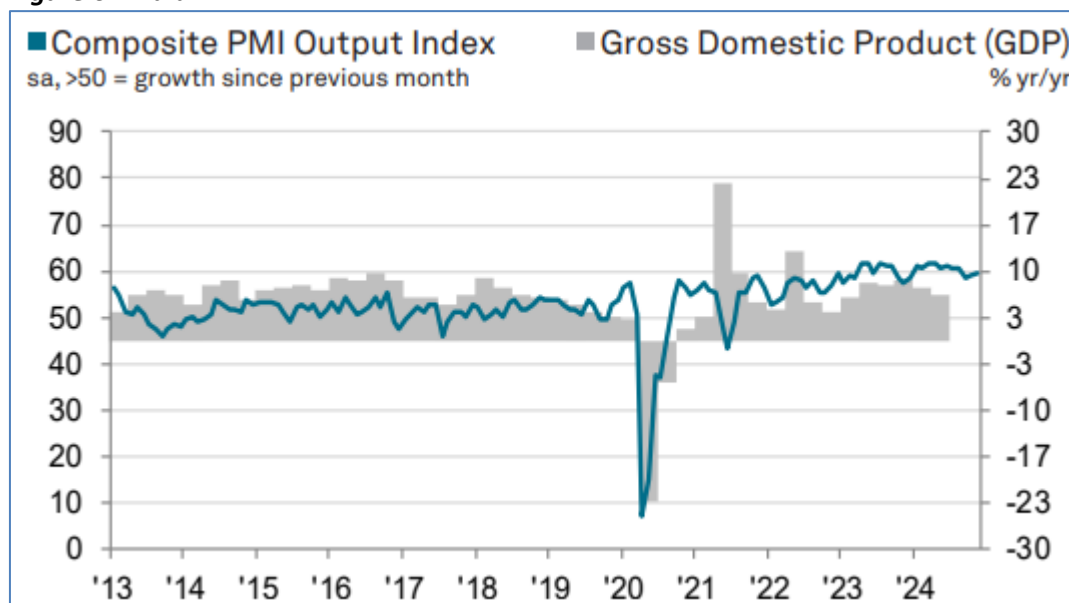


Source- NSO

Manufacturing PMI – India

- The HSBC Flash India Composite Output Index – a seasonally adjusted index that measures the month on-month change in the combined output of India's manufacturing and service sectors – rose from a final reading of 59.1 in October 2024 to 59.5 in November 2024, indicating a sharp rate of expansion that was the strongest in three months and above its long-run average. Growth ticked lower in the manufacturing industry whilst picking up in services, although the former outperformed again.
- At 57.3 in November, down only marginally from 57.5 in October, the HSBC Flash India Manufacturing PMI – a single figure snapshot of factory business conditions calculated from measures of new orders, output, employment, supplier delivery times and stocks of purchases – highlighted another substantial improvement in the health of the sector.
- The HSBC Flash India Services PMI Index rose from 58.5 in October 2024 to 59.2 in November 2024, showing growing confidence in the service sector.

Figure 6: India PMI



Source- S&P Global

India's external position

India's forex reserves

- India's forex reserves stand at \$ 657.89 billion as of 15th November, 2024 according to RBI.
- According to the Weekly Statistical Supplement released by the RBI, foreign currency assets (FCAs) fell by \$15.5 billion to \$569.84 billion.
- Gold reserves decreased by \$2 billion, bringing the total down to \$65.7 billion. The Special Drawing Rights (SDRs) dipped by \$94 million, now totaling \$18 billion, while the reserve position in the International Monetary Fund (IMF) contracted by \$51 million, now standing at \$4.2 billion.

India's foreign trade position

- India's total exports (Merchandise and Services combined) for October 2024 is estimated at USD 73.21 Billion, registering a growth of 19.08 percent vis-à-vis October 2023.
- Total imports (Merchandise and Services combined) for October 2024 are estimated at USD 83.33 Billion, registering a growth of 7.77 percent vis-à-vis October 2023.

Table 1: Trade during October 2024

		October 2024 (USD Billion)	October 2023 (USD Billion)
Merchandise	Exports	39.20	33.43
	Imports	66.34	63.86
Services	Exports	34.02	28.05
	Imports	17.00	13.46
Overall Trade (Merchandise + Services)	Exports	73.21	61.48
	Imports	83.33	77.33
	Trade Balance	-10.12	-15.85

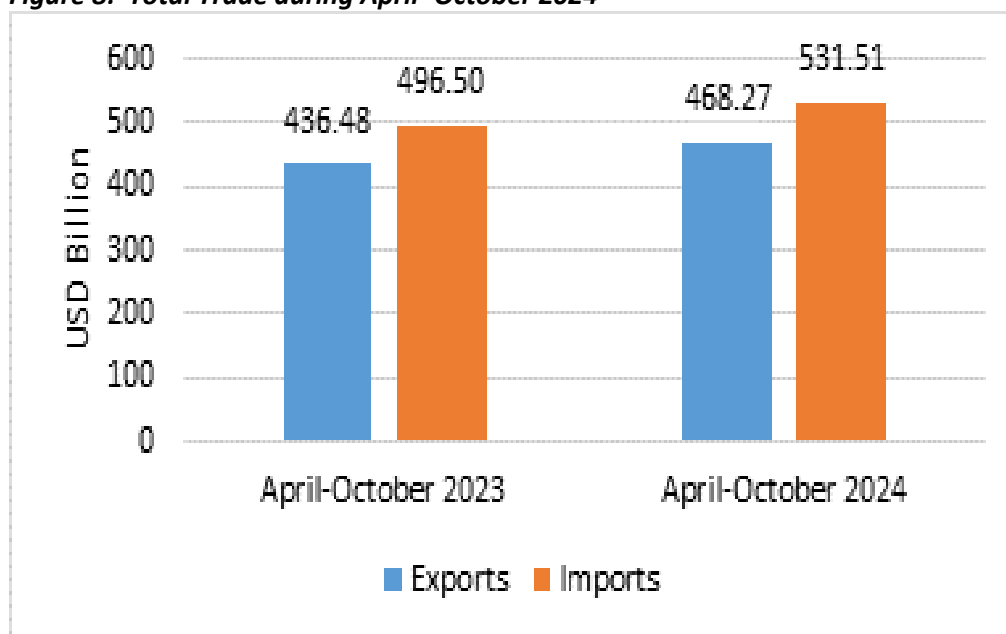
Source- Ministry of Commerce & Industry

Figure 7: Overall Trade during October 2024



Source- RBI

Figure 8: Total Trade during April- October 2024



Source- RBI

- India's total exports during April- October 2024 is estimated at USD 468.27 Billion registering a growth of 7.28 percent.
- Total imports during April- October 2024 is estimated at USD 531.51 Billion registering a growth of 7.05 percent.
- Exports of Rice (85.79%), Electronic Goods (45.69%), Engineering Goods (39.37%), Jute Mfg. Including Floor Covering (37%), Tobacco (34.3%), Handicrafts Excl. Hand Made Carpet (32.66%), Coffee (32.38%), Spices (30.91%), Organic & Inorganic Chemicals (27.35%), Mica, Coal & Other Ores, Minerals Including Processed Minerals (25%), Plastic & Linoleum (23.3%), Carpet (16.78%), Fruits & Vegetables (15.91%), Cereal Preparations & Miscellaneous Processed Items (13.35%), Man-Made Yarn/Fabs./Made-Ups Etc. (12.89%), Leather & Leather Products (12.33%), Tea (9.3%), Gems & Jewellery (8.77%), Drugs & Pharmaceuticals (8.21%), Meat, Dairy & Poultry Products (7.71%), Cashew (7.22%), Cotton Yarn/Fabs./Made-Ups, Handloom Products Etc. (6.97%), Marine Products (3.88%) and Oil Seeds (2.65%) record positive growth during October 2024 over the corresponding month of last year.
- Imports of Silver (-74.76%), Pearls, Precious & Semi-Precious Stones (-29.46%), Coal, Coke & Briquettes, Etc. (-28.34%), Leather & Leather Products (-19.41%), Newsprint (-16.85%), Transport Equipment (-11.82%), Project Goods (-6.16%), Fertilisers, Crude & Manufactured (-3.99%), Gold (-1.43%), Organic & Inorganic Chemicals (-1.39%) record negative growth during October 2024 over the corresponding month of last year.
- Services exports is estimated to grow by 12.51 percent during April-October 2024 over April-October 2023.

- Top 5 export destinations, in terms of change in value, exhibiting growth in October 2024 vis a vis October 2023 are Singapore (197.39%), U Arab Emts (43.32%), U S A (11.47%), U K (42.12%) and Australia (60.41%).
- Top 5 export destinations, in terms of change in value, exhibiting growth in April-October 2024 vis a vis April-October 2023 are Netherland (32.92%), U Arab Emts (15.86%), U S A (6.31%), Singapore (20.78%) and U K (16.23%).
- Top 5 import sources, in terms of change in value, exhibiting growth in October 2024 vis a vis October 2023 are U Arab Emts (70.37%), Russia (25.98%), Taiwan (82.76%), Peru (142.69%) and Angola (425.33%).
- Top 5 import sources, in terms of change in value, exhibiting growth in April-October 2024 vis a vis April-October 2023 are U Arab Emts (55.12%), China P Rp (9.8%), Russia (8.85%), Taiwan (45.45%) and Angola (99.84%).

7. India secures position in top 10 countries in Patents, Trademarks, and Industrial Designs: WIPO 2024 Report

The World Intellectual Property Organization (WIPO) has published the World Intellectual Property Indicators (WIPI) 2024, underscoring global trends in intellectual property (IP) filings. The report reveals significant growth in patent, trademark, and industrial design applications across top economies. India has secured a spot in the global top 10 for all three major intellectual property (IP) rights—patents, trademarks, and industrial designs. India continues to solidify its place as a global leader in the intellectual property (IP) landscape by showing substantial progress and marking new milestones in IP activity.

India recorded the fastest growth in patent (+15.7%) applications in 2023 among the top 20 origins, marking the fifth consecutive year of double-digit growth. India ranks sixth globally for patents with 64,480 applications, with resident filings accounting for over half of all submissions (55.2%)—a first for the country. The patent office also granted 149.4% more patents in 2023 compared to the previous year, underlining the country’s fast-evolving IP ecosystem.

The report indicates a steady rise (36.4%) in India’s industrial design applications, which aligns with increasing emphasis on product design, manufacturing, and creative industries within India. The top three sectors—Textiles and Accessories, Tools and Machines, and Health and Cosmetics—made up almost half of all design filings,

India ranked fourth globally in trademark filings, with a 6.1% increase in 2023. Nearly 90% of these filings were by residents, with key sectors including Health (21.9%), Agriculture (15.3%), and Clothing (12.8%) leading the way. India’s trademark office holds the second-largest number of active registrations worldwide, with over 3.2 million trademarks in force, reflecting the country’s strong position in global brand protection.

The report highlights continued growth in global intellectual property (IP) filings, reflecting innovation resilience despite economic challenges. Key findings show a record of 3.55 million patent applications filed

worldwide in 2023, up 2.7% from 2022 with notable contributions from leading economies in Asia. This increase was largely driven by residents in China, the United States, Japan, South Korea, and India.

The findings from WIPO's World Intellectual Property Indicators 2024 showcase India's advancements in innovation and IP. The steady increase in resident filings demonstrates the impact of government initiatives, which aim to make India a global innovation leader.

8. S&P Global retains India 2024-25 GDP forecast, lowers for next two years

S&P Global Ratings retained India's GDP forecast for the current financial year 2024-25 at 6.8 per cent while cutting economic growth forecasts for the next two years.

For 2025-26 and 2026-27, the global rating agency pegged India's GDP forecast at 6.7 per cent and 6.8 per cent, respectively, down 20 basis points from its previous estimates. For 2027-28, the rating agency pegged India's forecast at 7 per cent.

While purchasing manager indices (PMIs) remain convincingly in the expansion zone, other high-frequency indicators indicate some transitory softening of growth momentum due to the hit to the construction sector in the September quarter, the rating agency added.

Indian economy grew 6.7 per cent in the April-June quarter, lower than RBI's 7.1 per cent forecast. The RBI has pegged India's 2024-25 GDP growth at 7.2 per cent. IMF and World have pegged it at 7.0 per cent.

9. India leads climate action indicatives at CoP29 UN Climate Change Conference in Baku

India collaborated with various agencies to organize side events on several aspects of climate action during the CoP29 UN Climate Change Conference at Baku, Azerbaijan, from 11th-22nd November, 2024. India participated in these side events and shared experiences/initiatives to deal with the climate challenges.

The important side events include the following:

- **Integrating Disaster Resilient Infrastructure into the Adaptation Strategies, 13.11.2024 (CDRI Pavilion)**
Organizers: Govt. of India (MoEFCC) and Coalition for Disaster Resilient Infrastructure (CDRI)

The session was designed as a panel discussion to explore key approaches, challenges, and opportunities for integrating disaster risk reduction (DRI) into national adaptation strategies, offering a pathway toward more resilient and sustainable development. The panel deliberated on how countries can better assess infrastructure vulnerability in the face of changing climate risks, how DRI can be embedded into national adaptation strategies and long-term development goals, innovative financing mechanisms, collaboration among stakeholders to advance DRI.

CDRI's initiatives, such as the Infrastructure for Resilient Island States (IRIS), the Global Infrastructure Resilience Initiative (GIRI), and targeted efforts for critical infrastructure resilience, are actively assisting countries with technical support, data, and tools for resilience building.

- **LeadIT (Leadership Group for Industry Transition) Member Meet, 14.11.2024 (India Delegation Office)**

Organizers: Govt. of India (MoEFCC), Govt. of Sweden, with support from Leadership Group for Industry Transition (LeadIT) Secretariat

The purpose of the meeting was to interact with the members to understand their experience with LeadIT so far and how that can be made effective. State Secretary (Sweden) highlighted the importance of this partnership for Sweden. The Swedish companies are keen to engage in India in view of the massive growth potential in India and the conducive environment for start-ups to grow. Trade with India is growing at 15% every year and the cooperation between countries is expected to bring prosperity to both the countries.

India highlighted that it gives equal value to this partnership. This platform can play a significant role in overcoming these challenges. The members including Dalmia, SSAB, Vattenfall, Tata Motors, SAIL, Tata Steel highlighted technological challenges they face and recommended the areas of cooperation.

- **India-Sweden Industry Transition Partnership (ITP) – Road to Belém, 16.11.2024 (Swedish Pavillion)**

Organizers: Govt. of India (MoEFCC), Govt. of Sweden, with support from LeadIT Secretariat

At CoP28, Prime Minister of India, Shri Narendra Modi and Prime Minister of Sweden, Ulf Kristersson had launched the India-Sweden Industry Transition Partnership (ITP) as part of the LeadIT initiative. The Prime Ministers committed to return to CoP30 in Belém to deliver tangible results under this partnership. With one year to go, this side-event provided an opportunity to take stock of progress made under the India-Sweden ITP and highlight the links to its sister partnership, the Brazil-UK Industry Decarbonisation and Hydrogen Hubs.

The panel discussions showcased progress under India-Sweden ITP and ongoing political commitment, highlighted links between the India-Sweden ITP and the Brazil-UK Hubs and served as a springboard towards a CoP30 moment with leaders and stakeholders.

- **Energy Transitions for the Global South: Unleashing the role of solar for the global south, 19.11.2024 (ISA Pavilion)**

Organizers: Govt. of India (MoEFCC) and International Solar Alliance (ISA)

The session began with a critical examination of solar energy's role in addressing the intertwined challenges of energy security and climate change, with a special emphasis on its significance for the Global South. Participants stressed the urgency of hastening the energy transition to bridge developmental disparities while promoting a balance of economic growth, social justice, and

environmental sustainability. Solar energy was spotlighted as a cost-effective and adaptable renewable energy source, crucial for breaking the link between economic development and carbon emissions.

Shri Kirti Vardhan Singh, Minister of State for Environment, Forest & Climate Change in India, underscored the pivotal moment facing the global energy landscape. He articulated the pressing need for a swift transition to renewable energy resources to confront the escalating threats posed by climate change and to ensure a stable and secure energy future. The session called for a 20x increase in solar adoption by 2050, aiming to meet over 75% of the world's grid energy needs.

10. FDI equity inflows jump 43% in July-Sept quarter

- Foreign direct investment (FDI) equity inflows to India jumped 43% to \$13.61 billion in the July-September quarter of 2024-25 compared to \$9.54 billion in the same period last year.
- Singapore, United Arab Emirates and Mauritius accounted for nearly 64% of the FDI equity inflow during the second quarter. Singapore led foreign equity contributions with an inflow of \$7.53 billion, followed by Mauritius (\$5.24 billion), Netherlands (\$3.58 billion), UAE (\$3.47 billion) and the United States (\$2.57 billion).
- Maharashtra, Gujarat, Delhi, and Karnataka received over 82% of the inflows in Q2 of 2024-25.
- Most investments went to trading, services, computer software, IT hardware and power sectors, which accounted for nearly 49% of the FDI equity inflow in the quarter.
- While Q2 saw a significant year-on-year increase, the inflow was lower than the Q1 figure of \$16.18 billion, according to the data published from Ministry of Commerce.
- Further, FDI equity inflow in the first six months of current fiscal year has already crossed the two-third mark of full financial year of 2023-24 (\$44.42 billion), hence total inflow could see a significant jump when this financial year ends on March 31, 2025.

11. India's renewable capacity reaches 203 GW, solar grows 28%: MNRE

- According to the Central Electricity Authority, the total renewable energy-based electricity generation capacity now stands at 203.18 GW. This achievement underscores India's growing commitment to clean energy and its progress in building a greener future.
- India's total renewable energy installed capacity surged by an impressive 24.2 GW (13.5%) in just one year, reaching 203.18 GW (46.3% of the country's total installed capacity) in October 2024, up from 178.98 GW in October 2023. Additionally, when including nuclear energy, India's total non-fossil fuel capacity rose to 211.36 GW in 2024, compared to 186.46 GW in 2023.

- A variety of renewable energy resources contribute to this impressive figure. Solar power leads the way with 92.12 GW, playing a crucial role in India's efforts to harness its abundant sunlight. Wind power follows closely with 47.72 GW, driven by the vast potential of the coastal and inland wind corridors across the country. Hydroelectric power is another key contributor, with large hydro projects generating 46.93 GW and small hydro power adding 5.07 GW, offering a reliable and sustainable source of energy from India's rivers and water systems.
- Biopower, including biomass and biogas energy, adds another 11.32 GW to the renewable energy mix. These bioenergy projects are vital for utilizing agricultural waste and other organic materials to generate power, further diversifying India's clean energy sources.
- The proactive initiatives such as the National Green Hydrogen Mission, PM-KUSUM, PM Surya Ghar, and the PLI schemes for solar PV modules underscore the government's strategic focus on enhancing energy generation capacity while reducing reliance on fossil fuels.
- With ambitious targets set for the future, including a goal of 500 GW from non-fossil sources by 2030, India is well- positioned to emerge as a global leader in renewable energy, contributing to environmental sustainability and energy security.
- These ongoing efforts reflect a holistic approach to building a greener economy, ensuring that India not only meets its energy needs but also addresses the pressing challenges of climate change and resource conservation.

Lessons from Economics

Invisible Hand Theory

The concept of the “invisible hand” was invented by the renowned economist and father of economics, Adam Smith. It refers to the invisible market force that brings a free market to equilibrium with levels of supply and demand by actions of self-interested individuals. The theory states that individuals that trade in a free market pursuing their own interests will end up maximizing social benefits. Furthermore, the benefits derived from the free market are maximum and more than those in a regulated and planned economy.

Every individual, acting in their self-interest, generates a demand or supply which compels others to buy or sell goods or services. In return, he either receives or pays compensation and one entity makes a profit. In this process of exchange in a free economy, resources are allocated in the most efficient manner.

The invisible hand theory basically tries to convey that without any intervention, if all individuals in the economy act in their best self-interest, the result is automatically in the best interests of the economy. The results will always be better than those of a centrally planned and regulated economy.

Importance of Invisible hand in an economy

- The invisible hand is part of the laissez-faire policy concerning the market. Laissez-faire translates to "let do/let go" and this approach holds that the market will find equilibrium without government or other interventions forcing it into unnatural patterns.
- The invisible hand allows the market to reach equilibrium without government or other interventions. When supply and demand find equilibrium naturally, oversupply and shortages are avoided. The best interest of society is achieved via self-interest and freedom of production and consumption.

Example of Invisible hand: -

- For example, if a car manufacturer produces more mini-vans than they can sell each year, their self-interest in making a profit means they will adjust prices or produce fewer mini-vans going forward, and perhaps manufacture more sedans if that is what consumers want. The government does not necessarily have to tell the manufacturer how many models of different types of cars to make, as there is a natural force driving efficiency — the invisible hand.

Criticism of Invisible hand: -

- Monopolies can set prices at a non-competitive price — even if it is high and consumers do not want to pay that much prices. Also, with the barrier to entry to be so high that no other company tries to compete, leaving customers with the suboptimal choice to overpay or not buy at all.

- Exploitative practices can cause harm in an invisible hand economy. For example, effective advertising can lead to consumers buying more than they need. That might serve consumers' short-term self-interest, but it could lead to poor financial choices that ultimately lead to long-term economic instability. Consumers might buy products that harm the environment, not realizing that it threatens their long-term best interests., e.g., buying certain products has led to extensive climate change, the problem could be too far gone for the market to course-correct.

Relevance of Invisible hand in times of crisis

While Adam Smith's invisible hand theory is still relevant today, it has also come under scrutiny during events like the financial crisis of 2008, the Covid-19 pandemic, and crypto boom.

The Covid-19 pandemic has led to a dramatic change in the structure of the economy, given the lockdowns that have been imposed on economies. One can therefore see how firms have identified immense profitable opportunities and adjusted their businesses to seek this out, in terms of rising prices of hand sanitizers, face masks, medicines; rising usage of videoconferencing services etc.

Oil Market

Crude oil price – Monthly Review

Global oil prices have eased from early-October highs, as market attention once again shifted from supply risks to concerns over the health of the global economy, sluggish oil demand and ample supply. After surging past \$80/bbl at the start of October, Brent crude oil futures fell to around \$72/bbl by mid-November as fears of an attack by Israel on Iran's energy infrastructure faded. Oil market participants refocused attention on fundamentals, including weak Chinese demand, the resumption of Libyan crude output and the planned unwinding of OPEC+ production cuts, all foreshadowing a well-supplied oil market in 2025. Speculative length in paper markets remains near historical lows.

Hedge funds and other money managers maintained bearish stances on oil prices with mixed movements in their positions. In the first week of October, speculators covered a significant volume of short positions and increased their exposure. Sentiment then shifted and speculators reduced net long positions for three following weeks. Between the weeks of 8 October and 29 October, money managers sold an equivalent of 113 mb, leading to a 37.2% drop in combined futures and options net long positions in ICE Brent and NYMEX WTI.

Crude oil futures rebounded in the first week of October from the lower levels seen in the previous month, driven by a shift in speculative positioning. Speculative selling subsided and short covering surged as part of market participants' rush to close bearish positions. This change was prompted by heightened geopolitical tensions in the Middle East, which altered the outlook of money managers and increased the perception of supply risks. Despite the price recovery, volatility remained elevated due to the sudden shifts and adjustments in speculative positions, as well as traders' cautious approaches to market developments.

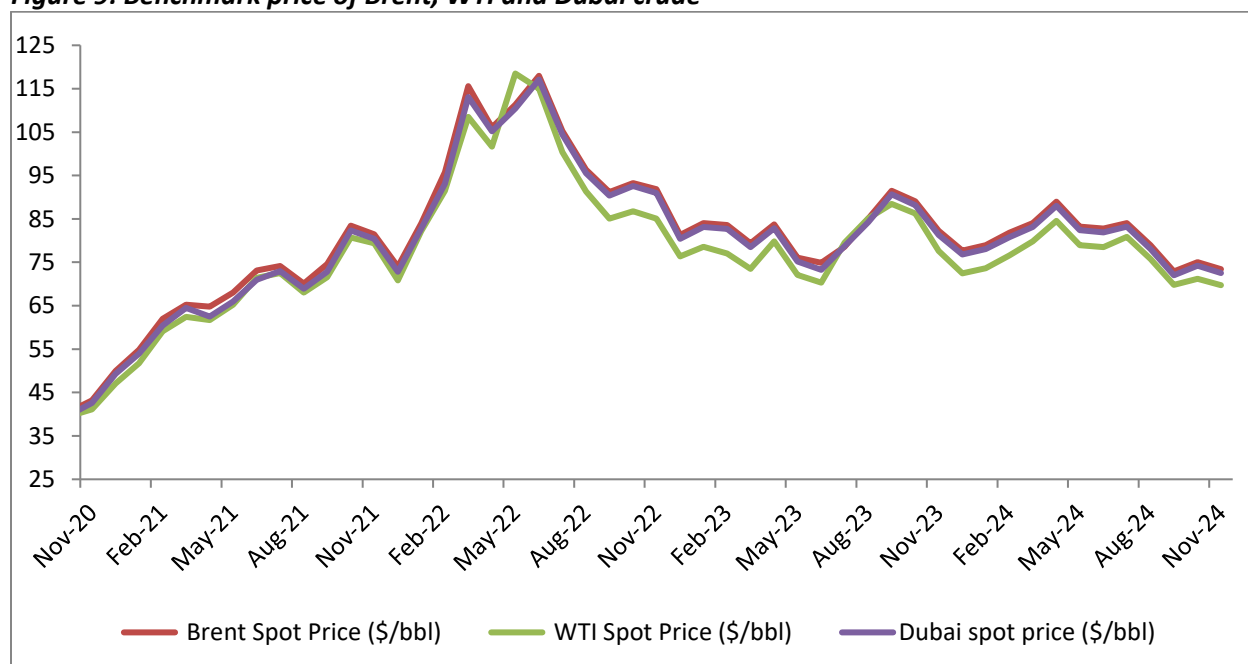
Crude oil spot prices rebounded in October from the low level seen in September as concerns about the demand outlook subsided and uncertainty about geopolitical developments in the Middle East persisted. Easing selling pressure and short covering in futures markets lent support to prices earlier in the month. Higher refining margins in all major trading hubs provided additional support to oil prices. However, the oil price rally was capped by signs of a well-supplied spot crude market and a build in US crude oil stocks in October, which were coupled with maintenance season. Spot crude prices remained at a premium to futures prices in October, but the spread continued to narrow.

The premium of light sweet crude over medium sour crude continued to show mixed movement among regions in October, following the same trends observed in the previous month. In Europe and Asia, sweet sour crude differentials narrowed further as the value of light sweet crude came under pressure due to the high availability of prompt loading barrels in the Atlantic Basin, and amid the peak of refinery maintenance season. Meanwhile, stronger fuel oil margins lent support to medium and heavy sour grades. In contrast, in the US Gulf Coast (USGC), the sweet-sour crude spread widened slightly in October as sour crude remained under pressure.

In October, the ORB value rose by 86¢, or 1.2%, m-o-m, to stand at \$74.45/b, as ORB component-related crude benchmarks increased. However, the gain was limited due to lower official selling prices (OSPs) and a weakening of most crude differentials in all major trading hubs.

Brent crude ranged an average to \$73.39 a barrel and WTI ranged to \$69.71 per barrel in the month of November 2024.

Figure 9: Benchmark price of Brent, WTI and Dubai crude



Source- World Bank

- Brent crude price averaged \$73.39 per bbl in November 2024, down by 2.2% on a month on month (MoM) and by 10.8% on year on year (YoY) basis, respectively.
- WTI crude price averaged \$69.71 per bbl in November 2024, down by 2.1% on a month on month (MoM) and by 10.2% on year on year (YoY) basis, respectively.
- Dubai crude price averaged \$72.54 per bbl in November 2024, down by 2.2% on a month on month (MoM) and by 10.8% on year on year (YoY) basis, respectively.

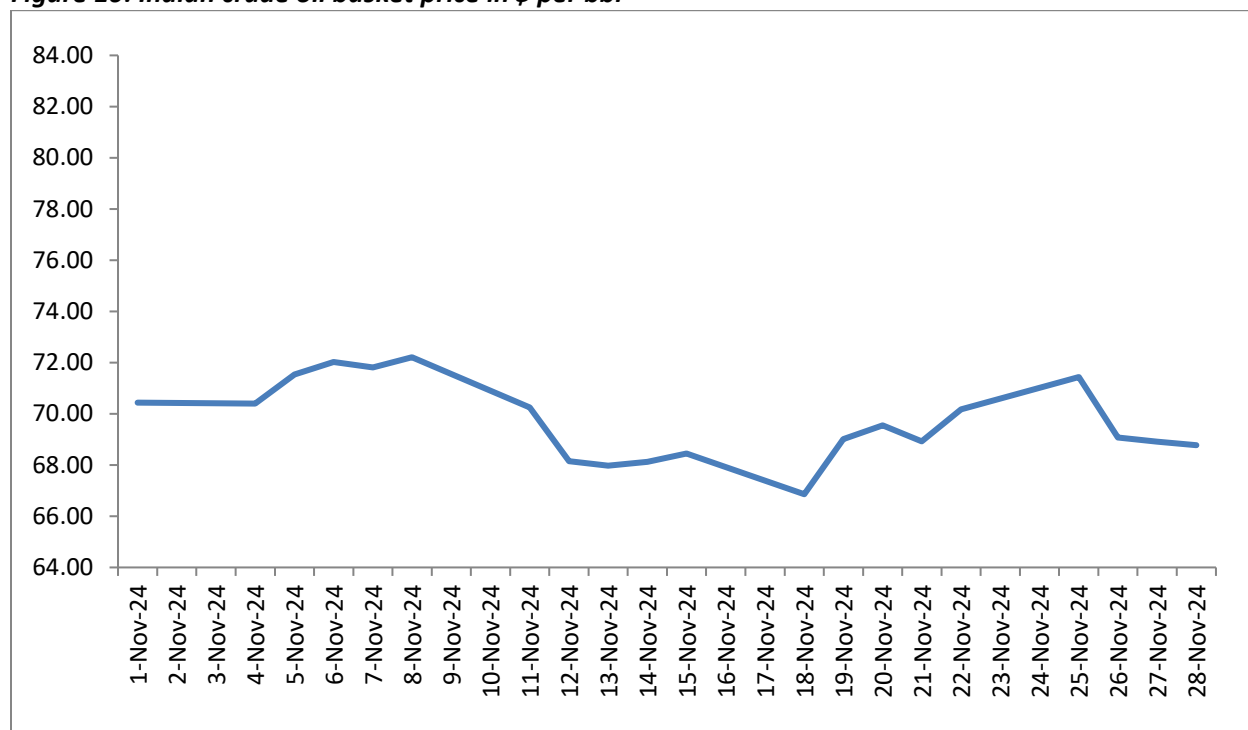
Table 2: Crude oil price in November, 2024

Crude oil	Price (\$/bbl)	MoM (%) change	YoY (%) change
Brent	73.39	-2.2%	-10.8%
WTI	69.71	-2.1%	-10.2%
Dubai	72.54	-2.2%	-10.8%

Source- World Bank

Indian Basket Crude oil price

Figure 10: Indian crude oil basket price in \$ per bbl



Source- PPAC

- Indian crude basket price averaged \$73.04 per barrel in November 2024, down by 3.2% on Month on Month (M-o-M) and by 12.4% on a year on year (Y-o-Y) basis, respectively.

Oil production situation

- Non-DoC (Declaration of Cooperation) liquids supply (i.e. liquids supply from countries not participating in the DoC) is expected to grow by 1.2 mb/d, y-o-y, in 2024, unchanged from last month's assessment. The main growth drivers are expected to be the US and Canada. For 2025, the non-DoC liquids supply growth forecast is expected to grow by 1.1 mb/d, y-o-y, also unchanged from last month. Growth is anticipated to be mainly driven by the US, Brazil, Canada, and Norway.
- Natural gas liquids (NGLs) and non-conventional liquids from countries participating in the DoC are forecast to grow by about 0.1 mb/d, y-o-y, to average 8.3 mb/d in 2024, followed by an increase of about 80 tb/d, y-o-y, to average 8.4 mb/d in 2025. Crude oil production by the countries participating in the DoC increased by 0.21 mb/d in October compared with the previous month, averaging about 40.34 mb/d, as reported by available secondary sources.

Table 3: Non-DoC liquids production in 2024, mb/d

Non-OPEC liquids production	2023	1Q24	2Q24	3Q24	4Q24	2024
Americas	26.67	26.91	27.58	27.75	27.67	27.48
<i>of which US</i>	20.97	21.02	21.81	21.81	21.63	21.57
Europe	3.65	3.66	3.59	3.52	3.68	3.61
Asia Pacific	0.45	0.46	0.43	0.47	0.46	0.45
Total OECD	30.77	31.03	31.60	31.73	31.82	31.54
China	4.52	4.62	4.63	4.52	4.51	4.57
India	0.79	0.80	0.79	0.78	0.80	0.79
Other Asia	1.61	1.62	1.62	1.60	1.59	1.61
Latin America	6.96	7.28	7.19	7.18	7.38	7.26
Middle East	2.02	2.00	2.00	2.01	2.02	2.01
Africa	2.22	2.24	2.26	2.38	2.31	2.30
Other Eurasia	0.37	0.37	0.37	0.37	0.37	0.37
Other Europe	0.10	0.10	0.10	0.10	0.10	0.10
Total Non-OECD	18.60	19.03	18.96	18.94	19.09	19.00
Total Non-DoC production	49.37	50.06	50.56	50.66	50.90	50.55
Processing gains	2.47	2.52	2.52	2.52	2.52	2.52
Total Non-DoC liquids production	51.84	52.58	53.08	53.18	53.42	53.07

Note. *2024 = Forecast. Totals may not add up due to independent rounding

Source- OPEC monthly report, November 2024

- From the above table, it can be inferred, that the total non-DoC liquids production is expected to reach 53.07 mb/d by 2024.
- The non-DoC liquids supply (i.e. liquids supply from countries not participating in the Declaration of Cooperation) is expected to grow by 1.2 mb/d in 2024 to average 53.1 mb/d.

Oil demand situation

- The global oil demand growth forecast for 2024 is revised down slightly by 107 tb/d from the previous month's assessment to 1.8 mb/d, y-o-y. This minor adjustment is mainly due to updated data for 1Q24, 2Q24 and 3Q24. OECD oil demand is expected to grow by around 0.2 mb/d, while non-OECD demand is forecast to expand by close to 1.7 mb/d.
- In 2025, global oil demand growth is also revised down slightly by 103 tb/d from the previous month's assessment to 1.5 mb/d, y-o-y. The OECD demand is expected to grow by 0.1 mb/d, y-o-y, while demand in the non-OECD is forecast to expand by 1.4 mb/d.

Table 4: World Oil demand, mb/d

	2023	1Q24	2Q24	3Q24	4Q24	2024	Growth	%
Total OECD	45.65	44.79	45.80	46.41	46.21	45.81	0.16	0.35
~ of which US	20.36	19.92	20.47	20.71	20.85	20.49	0.13	0.62
Total Non-OECD	45.56	58.01	57.39	58.12	59.35	58.22	1.66	2.94
~ of which India#	5.34	5.66	5.61	5.47	5.65	5.60	0.25	4.76
~ of which China	16.36	16.66	16.60	16.7	17.20	16.81	0.45	2.78
Total world	102.21	102.80	103.19	104.54	105.56	104.03	1.82	1.78

Source- OPEC monthly report, November 2024

Note: 2024* = Forecast. Totals may not add up due to independent rounding

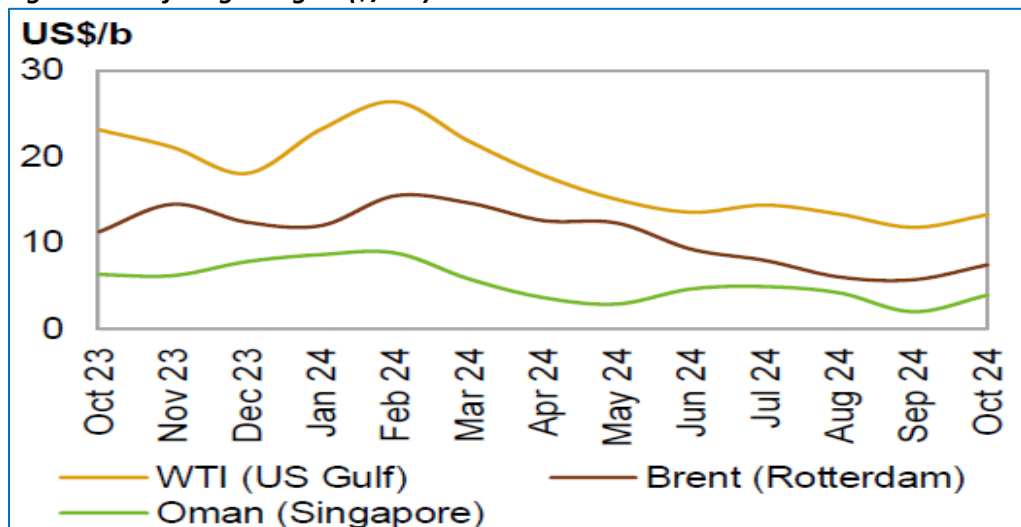
Global petroleum product prices

USGC refining margins rose in October to recover most of the loss registered in the previous month. The monthly gain came mostly from the complex refinery configurations, particularly towards the end of the month. US refinery processing rates managed to show a 140 tb/d monthly rise in October as some refiners returned to operations. However, October US refinery runs remained considerably suppressed (-1.1 mb/d) compared to the levels seen before the heavy maintenance season in June 2024, indicating significant capacity remaining offline in October. HSFO demand was reported to have increased towards the end of the month, leading to inventory draws amid strong bunker demand.

Refinery intake in the USGC was 140 tb/d higher, m-o-m, averaging 16.17 mb/d in October. USGC margins against WTI averaged \$13.21/b in October, up by \$1.47, m-o-m, but down by \$9.90, y-o-y.

Refinery margins in Rotterdam against Brent increased following seven consecutive months of losses. Similarly to what was witnessed in the USGC, the heavy refinery maintenance works in the Atlantic Basin supported product crack spreads in Northwest Europe, which was in line with market expectations. Prevailing HSFO tightness in Europe due to lower output and supplies from Russia underpinned a \$10.24/b, m-o-m, surge in Rotterdam HSFO crack spreads against Brent, despite the October absolute level remaining in negative territory. Contrary to what was seen in the USGC, gasoline crack spreads in NWE against Brent managed to show a notable monthly improvement, with gasoline representing the strongest positive performer across the barrel in Rotterdam.

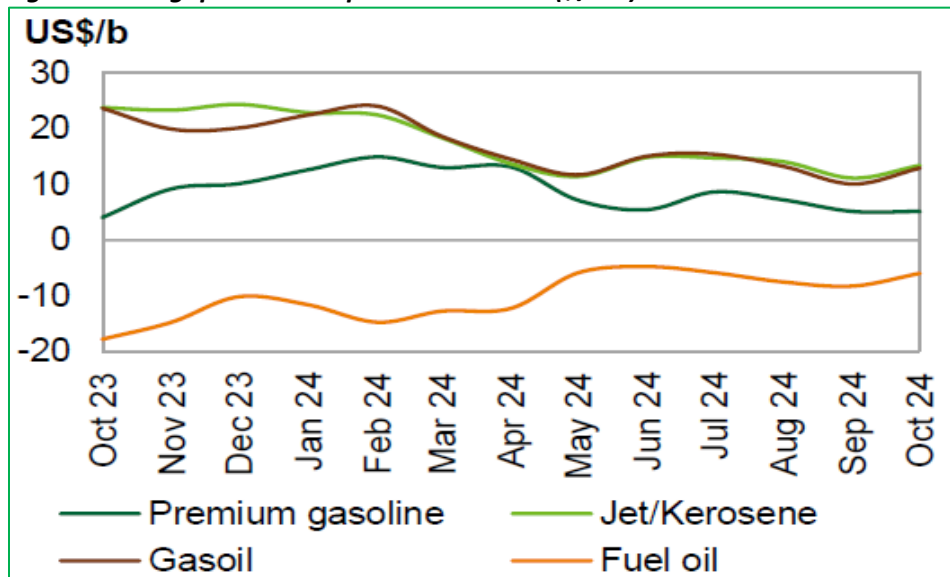
Figure 11: Refining Margins (\$/bbl)



Source- Argus and OPEC

The Southeast Asia gasoline 92 crack spread against Dubai remained nearly flat, as stronger regional demand in October managed to outweigh the pressures from challenging East-to-West export opportunities witnessed in the previous months. Refinery outages within the region contributed to higher buying interest for gasoline volumes from Singapore, amid tight Chinese export quotas. This upside, however, is expected to be short-lived when refineries in Asia return online. Additionally, projections of rising refinery runs in the Atlantic Basin and winter-season related demand pressures are set to correct the negative dynamic of Asian crack spreads in the near term. The product’s margin averaged \$4.99/b in October, up 1¢, m-o-m, and \$1.09, y-o-y.

Figure 12: Singapore crack Spreads vs. Dubai (\$/bbl)



Source- Argus and OPEC

The Singapore gasoil crack spread trended upwards reflecting stronger gasoil fundamentals on the back of firm domestic demand, particularly from Indonesia, as the country experienced an extended refinery shutdown. The Singapore gasoil crack spread against Dubai averaged \$12.79/b, up \$2.89, m-o-m, but down \$10.88, y-o-y.

Table 5: Singapore FOB, refined product prices (\$/bbl) in October 2024

Singapore product prices	Price (\$/b)	MoM (%) change	YoY (%) change
Naphtha	73.09	4.0%	3.2%
Premium gasoline (unleaded 95)	85.87	3.6%	-13.2%
Regular gasoline (unleaded 92)	79.59	1.6%	-15.1%
Jet/Kerosene	87.92	4.1%	-22.6%
Gasoil/Diesel (50 ppm)	87.70	4.2%	-25.1%
Fuel oil (180 cst 2.0% S)	87.20	5.0%	-22.7%
Fuel oil (380 cst 3.5% S)	68.42	5.4%	-4.8%

Source- OPEC

Petroleum products consumption in India

Monthly Review:

- Overall consumption of all petroleum products in October 2024 with a volume of 20.04 MMT registered growth of 4.03% on volume of 19.26 MMT in October 2023.
- MS (Petrol) consumption during the month of October 2024 with a volume of 3.41 MMT recorded a growth of 8.65% on volume of 3.14 MMT in October 2023.
- HSD (Diesel) consumption during the month of October 2024 with a volume of 7.64 MMT recorded growth of 0.07% on volume of 7.63 MMT in the month of October 2023.
- LPG consumption during the month of October 2024 with a volume of 2.73 MMT registered growth of 9.26% over the volume of 2.50 MMT in the month of October 2023.
- ATF consumption during October 2024 with a volume of 0.757 MMT registered a growth of 9.47% over the volume of 0.691 MMT in October 2023.
- Bitumen consumption during October 2024 with a volume of 0.693 MMT registered de-growth of 2.51% over volume of 0.711MMT in the month of October 2023.
- Kerosene consumption registered de-growth of 3.28% during the month of October 2024 as compared to October 2023.

Table 6: Petroleum products consumption in India, October 2024 and Year till Date (YTD) 2024

Consumption of Petroleum Products (P)	Monthly			Year till Date	
	Consumption in '000 MT	MoM (%) change	YoY (%) change	Consumption in '000 MT	YoY (%) change
LPG	2,727	5.1%	9.3%	17736	6.65%
Naphtha	1,175	14.2%	5.3%	7904	5.10%
MS	3,412	8.4%	8.7%	23262	7.43%
ATF	757	4.2%	9.5%	5134	10.25%
SKO	33	-10.5%	-3.3%	237	-19.54%
HSD	7,640	19.9%	0.1%	52026	0.75%
LDO	69	-2.6%	2.6%	459	-0.67%
Lubricants & Greases	353	-3.8%	15.2%	2668	23.91%
FO & LSHS	648	13.6%	21.7%	3931	2.33%
Bitumen	693	40.0%	-2.5%	4402	-4.10%
Petroleum coke	1,703	4.7%	10.2%	12482	17.19%
Others	827	-8.1%	-16.2%	7407	-8.29%
TOTAL	20,036	11.7%	4.0%	137649	4.15%

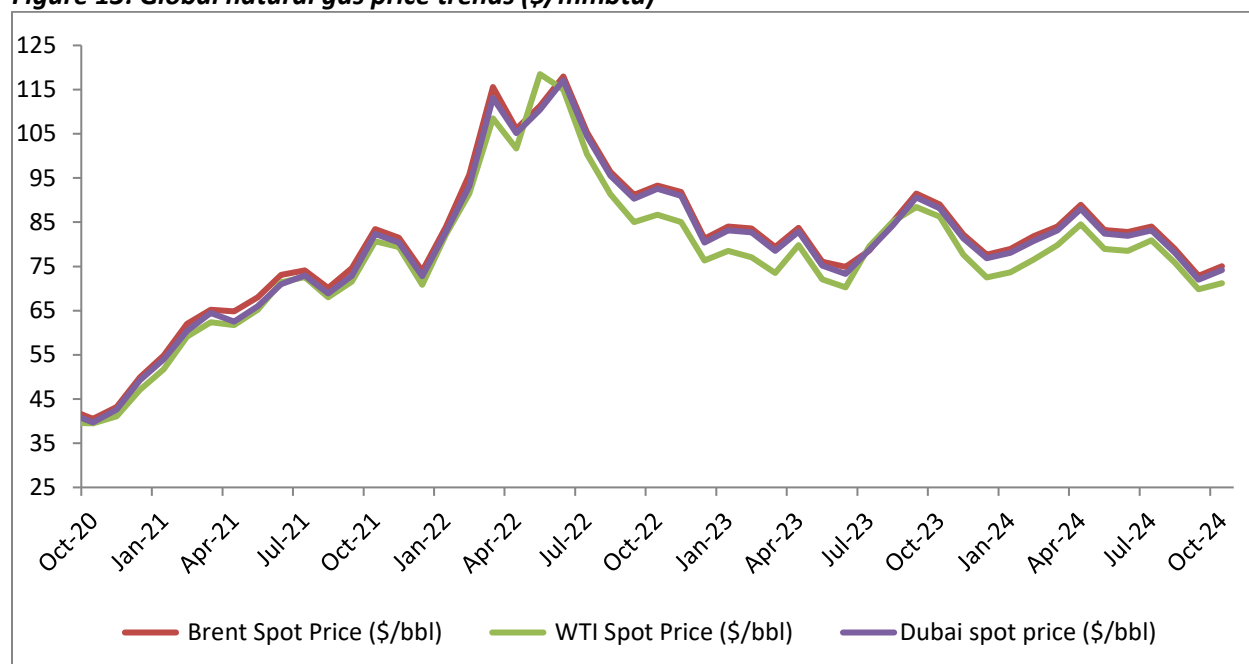
Source- PPAC

Fiscal Year: 1st April 2024 – 31st March 2025

Natural Gas Market

Natural Gas Price – Monthly Review

- Natural gas spot prices at the US Henry Hub benchmark averaged \$2.2 per million British thermal units (MMBtu) in October 2024. Concerns about supply disruptions ebbed as production continued to return to normalcy in October, following several outages caused by the hurricane season in the Gulf of Mexico during the two previous months. According to data from the US Energy Information Administration (EIA), underground storage rose in October by 8.0%, m-o-m. Prices were further pressured by US LNG export delays, which inflated domestic supplies. Henry Hub prices were down by ~26%, y-o-y.
- Natural gas spot price at the Title Transfer Facility (TTF) in the Netherlands in Europe traded at an average of \$12.92 per MMBtu. The average Title Transfer Facility (TTF) price rose in October by 9.6%, m-o-m. According to data from Gas Infrastructure Europe, EU storage levels were at about 95% capacity as of 31 October. Prices rose on the back of higher storage withdrawals amid greater demand. Withdrawals rose by 26.1%, m-o-m, in October, underscoring tightness in the market ahead of winter season demand. Prices were further supported by geopolitical developments, which continued to sustain price volatility. They were down by 11.3%, y-o-y.
- Japan Liquefied Natural Gas Import Price averaged at \$12.91 per MMBtu for October 2024. There is a change of -0.5% from last month and 2.3% 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\$ 6.5 per MMBTU. The price such arrived at will also have a floor of US\$4 per MMBTU.
- Further, in accordance with MoP&NG, Govt. of India, pricing freedom for gas being produced from discoveries in Deepwater, Ultra Deepwater and High Pressure-High Temperature areas, the gas price ceiling for the period 1st April, 2023 - 30th September, 2023 was notified as US\$ 12.12/MMBTU on Gross Calorific Value (GCV) basis as per notification dated 31st March, 2023. 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 as per notification dated 30th September 2023. Gas price ceiling was 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. 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.

Figure 13: Global natural gas price trends (\$/mmbtu)


Source- EIA, World Bank

Table 7: Gas price, October 2024

Natural Gas	Price (\$/MMBTU)	MoM (%) change	YoY (%) change
India, Domestic gas price (Nov'24)	7.53	0.67%	-17.43
India, Gas price ceiling – difficult areas (Oct'24-Mar'25)	10.16	2.94%	2.01%
GIXI (Gas index of India) price*	13.07	-4.0%	8%
Henry Hub	2.20	-3.5%	-26.2%
Natural Gas, Europe	12.92	9.7%	-11.3%
Liquefied Natural Gas, Japan	12.91	-0.5%	2.3%

Source- EIA, PPAC, World Bank, IGX

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

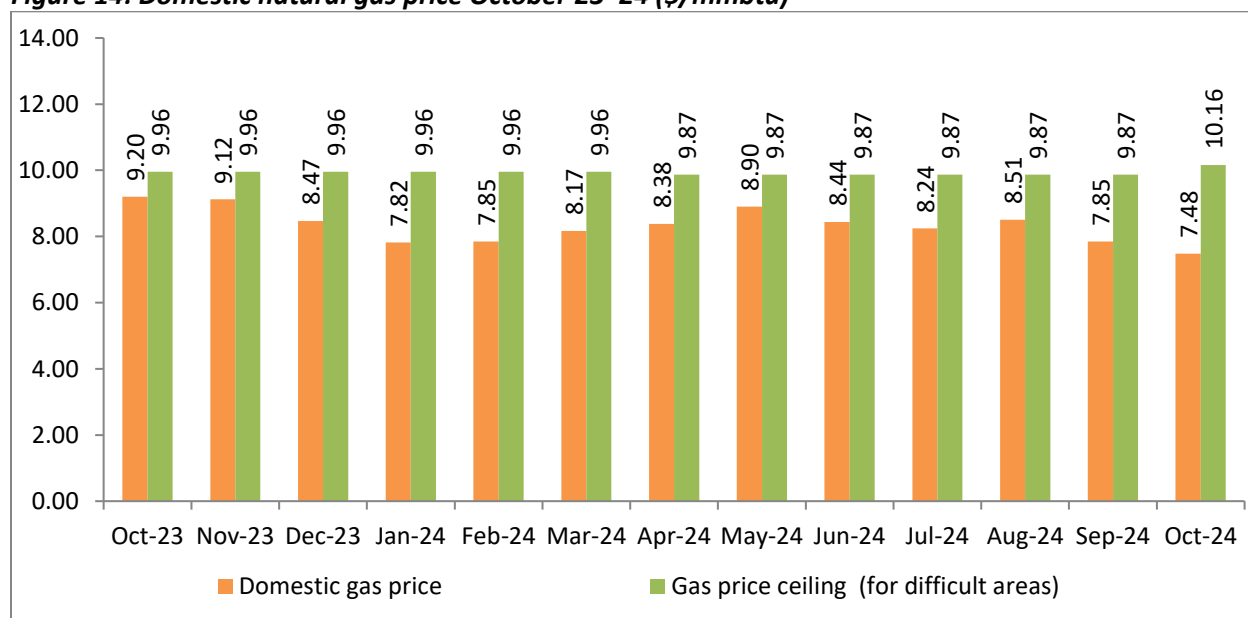
Table 8: Gas price, GCV Basis

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

Period	Domestic Gas calculated price in US\$/MMBTU	Gas price ceiling – difficult areas price in US\$/MMBTU
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

Source- PPAC

Figure 14: Domestic natural gas price October'23–24 (\$/mmbtu)



Source- PPAC

Indian Gas Market

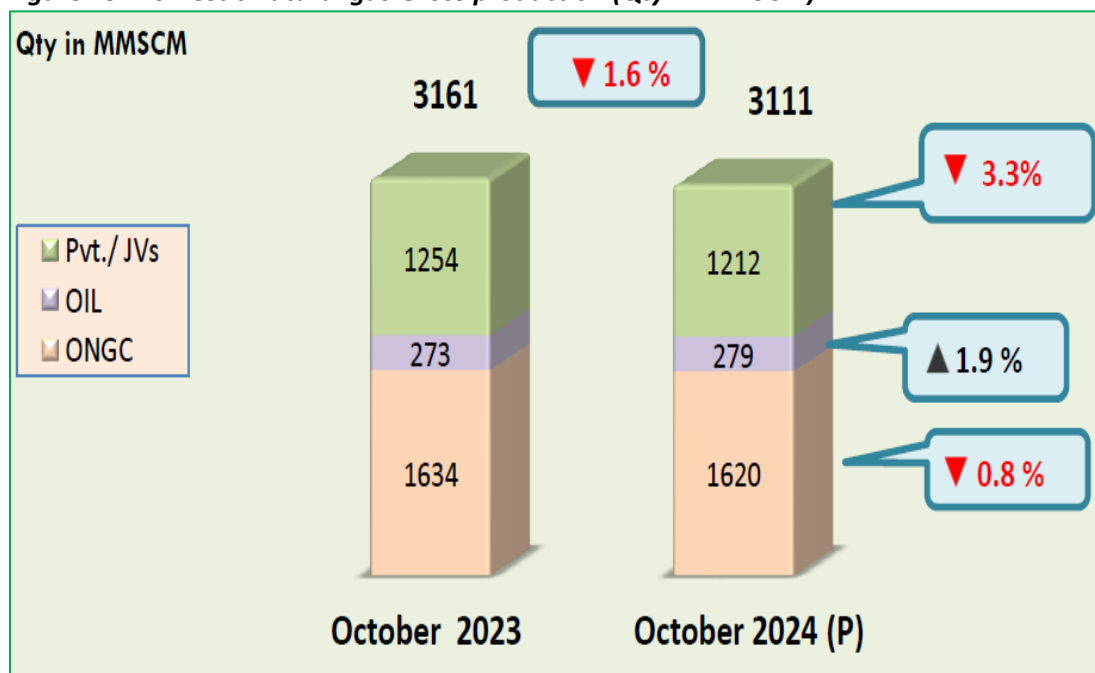
- Gross production of natural gas for the month of October 2024 (P) was 3111 MMSCM which was lower by 1.6% compared with the corresponding month of the previous year.
- Total import of LNG (provisional) during the month of October 2024 was 2941 MMSCM (P) (increase of 10.8 % over the corresponding month of the previous year).
- Natural gas available for sale during October 2024 was 5527 MMSCM (increase of 4.2% over the corresponding month of the previous year).
- Total consumption during October 2024 was 6019 MMSCM (provisional). Major consumers were fertilizer (29%), City Gas Distribution (CGD) (21%), Power (11%), Refinery (9%) and Petrochemicals (3%).

Monthly Report on Natural gas production, imports, and consumption – October 2024

1. Domestic Natural Gas Gross Production:

Domestic natural gas gross production for the month of October 2024 was 3111 MMSCM (decrease of 1.6% over the corresponding month of the previous year).

Figure 15: Domestic natural gas Gross production (Qty in MMSCM)

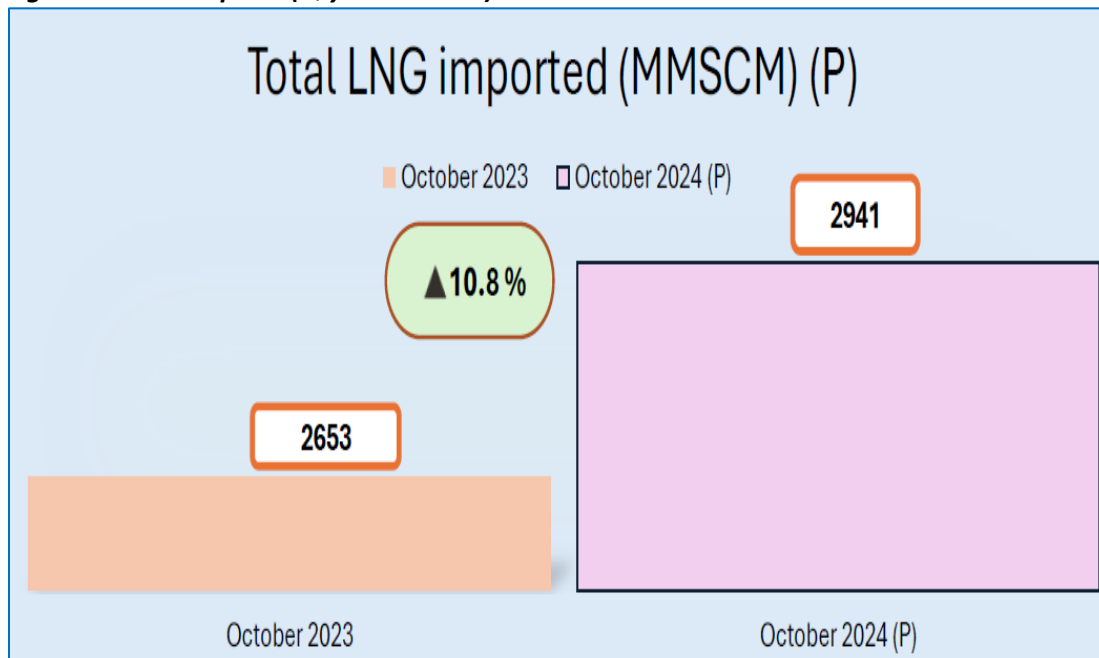


Source- PPAC

2. LNG imports:

Total import of LNG (provisional) during the month of October 2024 was 2941 MMSCM (P) (increase of 10.8 % over the corresponding month of the previous year).

Figure 16: LNG imports (Qty in MMSCM)

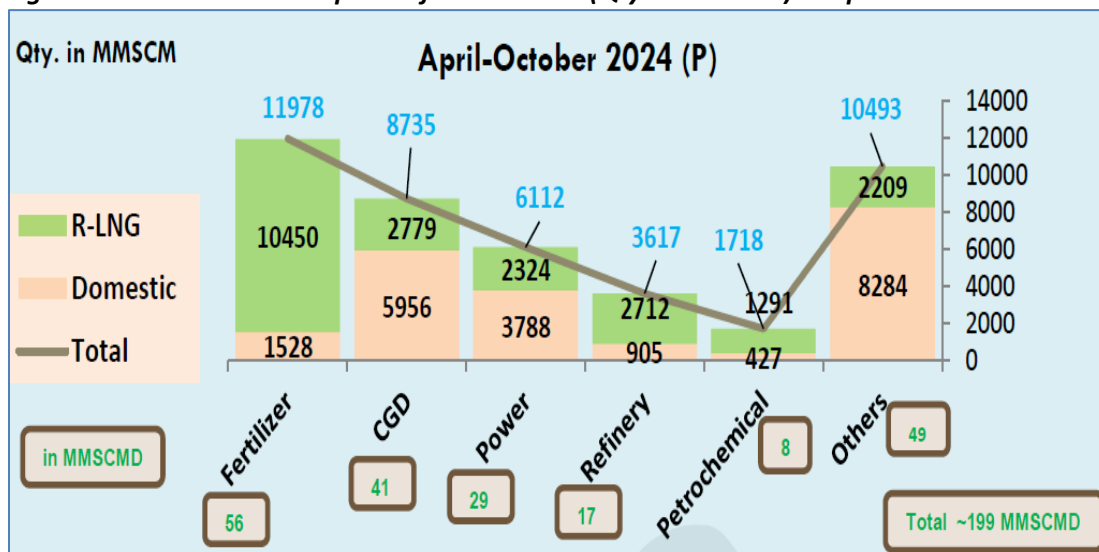


Source- PPAC

3. Sectoral Consumption of Natural Gas:

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

Figure 17: Sectoral Consumption of Natural Gas (Qty in MMSCM) in April-October 2024



Source- PPAC

Key developments in Oil & Gas sector

- **Monthly Production Report for October, 2024**

1. **Production of Crude Oil**

Indigenous crude oil and condensate production during October 2024 was 2.4 MMT. OIL registered a production of 0.3 MMT, ONGC registered a production of 1.6 MMT whereas PSC/RSC registered production of 0.5 MMT during October 2024. There is a de-growth of 4.9 % in crude oil and condensate production during October 2024 as compared with the corresponding period of the previous year.

2. **Production of Natural Gas**

Gross production of natural gas for the month of October 2024 (P) was 3111 MMSCM which was lower by 1.6% compared with the corresponding month of the previous year. The cumulative gross production of natural gas of 21271 MMSCM for the current financial year till October 2024 was higher by 1.1% compared with the corresponding period of the previous year.

3. **Crude Oil Processed (Crude Throughput)**

Total Crude oil processed during October 2024 was 21.3 MMT which is 3.6% higher than October 2023, where PSU/JV refiners processed 14.1 MMT and private refiners processed 7.2 MMT of crude oil. Total indigenous crude oil processed was 2 MMT and total imported crude oil processed was 19.3 by all Indian refineries (PSU+JV+PVT). There was a growth of 2% in total crude oil processed in April-October FY 2024-25 as compared to same period of previous Financial Year.

4. **Production of Petroleum Products**

Production of petroleum products was 23 MMT during October 2024 which is 5.2% higher than October 2023. Out of 23 MMT, 22.7 MMT was from refinery production & 0.3 MMT was from fractionator. There was a growth of 2.8% in production of petroleum products in April-October FY 2024 – 25 as compared to same period of FY 2023 – 24. Out of total POL production, in October 2024, share of major products including HSD is 41%, MS 16.8%, Naphtha 6.7%, ATF 6.6%, Pet Coke 5.3%, LPG 4.5%, and rest is shared by Bitumen, FO/LSHS, LDO, Lubes & others.

Key Policy developments/Significant news in Energy sector

Through biofuel blending country saved Rupees 91,000 Crore on import bill

Union Minister for Petroleum and Natural Gas Hardeep Singh Puri has said through biofuel blending, the country could save rupees 91,000 crore on the import bill and this money could be utilized for the benefit of the agricultural sector. Inaugurating the 27th Energy Technology Summit in Bengaluru, he said India has achieved the second position in biofuel blending globally. He expressed confidence that India will achieve the target of 20 percent biofuel blending by next year, much ahead of schedule.

As our refineries takes to green energy, the country will succeed in the goal towards green hydrogen, the Minister said. The Minister said India's energy demand will grow by two and a half times by 2047.

Speaking at the event, Shri Puri highlighted India's remarkable progress in the refining sector, which has transformed from a position of deficit in 2001 to becoming a global refining hub and net exporter of high-quality petroleum products. "India has witnessed a spectacular growth in the refining sector over the years," said Shri Puri. "From a deficit scenario in 2001, the country achieved self-sufficiency in refining, and today, India is a major exporter of quality petroleum products." He added that India has become the fourth-largest refining nation worldwide, with a capacity of 256.8 Million Metric Tonnes Per Annum (MMTPA), following the United States, China, and Russia. He further noted that, in line with India's strategic energy goals, efforts are underway to expand the refining capacity to 310 MMTPA by 2030.

He said the country will have to double the efforts to achieve the net carbon zero emission target by 2070. Energy security, sustainability and technology innovation should go hand-in-hand to achieve the targets in the energy sector, the Minister said. The three-day Energy Technology Meet has been organized by the Centre for High Technology and Indian Oil Corporation Limited. 1200 participants are attending the Meet, in which 60 papers will be presented.

Minister Hardeep Singh Puri Highlights India's Economic Growth and Vision for Sustainable Energy at the 12th Public Sector Enterprises Summit

"India is poised to become the third-largest economy in the world within the next five years and a developed nation by 2047," stated Shri Hardeep Singh Puri, Minister of Petroleum and Natural Gas, in his address at the 12th Public Sector Enterprises (PSE) Summit, organised by Confederation of Indian Industry (CII). Reflecting on India's transformation from a fragile economy in 2014 to the world's fifth-largest economy today, Shri Puri highlighted the role of Public Sector Enterprises (PSEs) in driving the nation's remarkable economic growth and advancing its sustainable energy future.

Shri Puri underscored that India's trajectory toward becoming a global economic powerhouse is rooted in robust reforms and the dedication of its PSEs. He praised the resilience and performance of Public Sector Enterprises over the last decade, noting that their contributions have been integral to India's economic stability and progress. "As we look to the future, the next few years will be critical in laying the groundwork for India's next leap forward," he said.

The Minister shared several key statistics illustrating the remarkable performance of India's Public Sector Enterprises. The net worth of Central Public Sector Enterprises (CPSEs) has increased by 82%, from Rs 9.5 trillion in FY14 to Rs 17.33 trillion in FY23. The contribution of CPSEs to the national exchequer—through excise duties, taxes, and dividends, has more than doubled, rising from Rs 2.20 lakh crore in FY14 to Rs 4.58 lakh crore in FY23.

He also highlighted that the net profit of profit-making CPSEs grew by 87%, from Rs 1.29 lakh crore in FY14 to Rs 2.41 lakh crore in FY23. Furthermore, the total market capitalization of all 81 listed PSEs has grown by 225% under the leadership of the Prime Minister Shri Narendra Modi, outpacing both the PSE index and the BSE Sensex over the past decade.

The Minister outlined a vision for India's energy sector, emphasizing three key principles: availability, affordability, and sustainability. "Sustainability is the cornerstone of our energy strategy and aligns directly with our larger vision of transforming PSEs into engines of sustainable growth," he said.

A prime example of India's focus on sustainability, Shri Puri highlighted the significant progress in bioethanol blending. "From 1.53% in 2014, ethanol blending has surged to 15% in 2024, with the government advancing the target of 20% blending to 2025—five years ahead of schedule," he said. The Minister also revealed that discussions have already started on developing a roadmap for the post-2025 phase i.e. after attainment of 20% ethanol blending target, ensuring continued growth in the bioethanol sector and advancing India's renewable energy goals.

On the subject of fossil fuels, the Minister acknowledged that while India is steadily transitioning to cleaner energy sources, fossil fuels will continue to be part of the energy mix for the foreseeable future. He highlighted that the government's approach would be to balance the energy transition while ensuring energy security, stability, and affordability for all citizens.

Shri Puri also highlighted the major reforms in the Exploration and Production (E&P) sector, which have opened up significant new areas for oil and gas exploration. "We have reduced No-Go areas in Exclusive Economic Zones (EEZ) by 99%, allowing for the largest-ever offering of 1,36,596 square kilometers in a single bid round under the Open Acreage Licensing Policy (OALP). Of these, 13 blocks, covering 51,405 square kilometers, were previously classified as 'No-Go' areas," he explained.

The Minister also emphasized India's growing potential in green hydrogen, noting that the country's local demand, production capacity, and consumption patterns make it an ideal candidate to become a global leader in green hydrogen production. He also touched upon the integration of Artificial Intelligence (AI) in India's energy systems, citing technological innovation as a key driver of efficiency and sustainability.

The Minister congratulated the CII for its efforts in empowering Public Sector Enterprises through organizing summits that provide a platform for collaboration and knowledge exchange. "These summits enable PSEs to share experiences, challenge norms, and find solutions for future challenges," he said. He emphasized the importance of collective efforts from all stakeholders to build a future where India's PSEs stand as pillars of excellence, integrity, and progress, guiding the nation towards sustainable growth.

Energy today has become spinal cord for economic growth and development: Petroleum Minister Hardeep Puri

“Energy today has become the spinal cord for economic growth and development,” said Shri Hardeep Singh Puri, Minister of Petroleum & Natural Gas, during the inaugural ceremony of GEO India 2024, India’s premier South Asian Geosciences Conference and Exhibition in Greater Noida. In his keynote address, Shri Puri highlighted the critical importance of energy in driving economic progress, especially in a country like India, where the demand for energy is increasing rapidly in line with its growing economy.

The Minister expressed his delight at being part of the event, which brings together leading experts from the Exploration and Production (E&P) sector both from India and abroad. GEO India 2024, organized by the Association of Petroleum Geologists, India, is the sixth edition of the conference and exhibition, with the theme *“Exploring New Dimensions of Energy Dynamics.”*

With India’s fuel demand growing at three times the global average, Shri Puri highlighted that 67 million people visit petrol pumps every day in India. This surging demand is expected to drive 25% of the global increase in energy consumption over the next two decades. “Balancing the trilemma of availability, affordability, and sustainability is not only a priority but a commitment that we are meeting head-on with a focus on exploration, production, and energy security,” he said.

India’s energy landscape is rapidly evolving, with the country boasting 651.8 million metric tons of recoverable crude oil reserves and 1,138.6 billion cubic meters of recoverable natural gas reserves within its sedimentary basins. Despite these abundant resources, a significant portion of India’s exploration potential remains untapped. Shri Puri pointed out that when the current government took office in 2014, only 6% of India’s sedimentary basins had been explored. Today, this figure has risen to 10%, and with further exploration activity under the Open Acreage Licensing Policy (OALP) rounds, this is set to increase to 16% by 2025. By 2030, the government aims to expand the nation’s exploration acreage to 1 million square kilometers, further bolstering India’s energy security.

The Minister also outlined several significant reforms implemented under the current government to stimulate growth in India’s energy sector. Key reforms include simplifying the approval process for exploration and production activities, reducing 37 approval processes to just 18, of which nine are now available for self-certification. Additionally, the introduction of the Oilfields (Regulation and Development) Amendment Bill in 2024 ensures policy stability for oil and gas producers, allows for international arbitration, and extends lease periods. Furthermore, the government has reduced “No-Go” areas in the Exclusive Economic Zone (EEZ) by almost 99%, opening vast new areas for exploration.

Shri Puri also highlighted the shift from the previous regime’s Production Sharing Contracts (PSCs) to the new Revenue Sharing Contracts (RSCs), which provide greater clarity and predictability for investors. He emphasized the establishment of a Joint Working Group (JWG) comprising stakeholders from private E&P companies, National Oil Companies, the Ministry of Petroleum and Natural Gas (MoPNG), and the Directorate General of Hydrocarbons (DGH) to address industry concerns and improve the ease of doing business.

Another key area of focus has been improving access to data concerning India's sedimentary basins. The government has made significant strides in facilitating data availability through initiatives like the National Seismic Programme (NSP) for onshore areas, EEZ surveys for offshore areas, and the opening up of previously unexplored regions such as the Andaman Basin. Shri Puri noted that the government is also making data more accessible to international companies by setting up a new data centre at the University of Houston, enabling foreign firms to view critical geological data with ease.

The recent Open Acreage Licensing Policy (OALP) bidding round IX marked a historic milestone, with 136,596 square kilometers of exploration area offered in 28 blocks across 8 sedimentary basins. Notably, 38% of the area offered in this round had previously been classified as "No-Go" areas. The round saw a strong response, with a total of 60 bids received for the 28 blocks, reflecting heightened interest from both Indian and foreign companies. The average number of bids per block increased to 2.4, compared to just 1.3 per block in the previous round.

Looking ahead, Shri Puri expressed optimism about India's energy future, particularly in the field of green hydrogen. With projects focused on hydrogen blending in natural gas pipelines, the localization of electrolyser technologies, and the promotion of bio-pathways for green hydrogen production, India is positioning itself as a future global leader in green hydrogen production and exports. The Minister emphasized that green hydrogen is seen as the fuel of the future, and India is committed to becoming a global hub for its production.

GEO India 2024, is expected to draw around 2,000 participants and feature over 20 conference sessions, 4 plenary discussions, 200+ technical papers, and 50+ exhibition booths. "I have great faith in the innovative minds of geoscientists to lead an energy revolution in India, ensuring energy security for every citizen and meeting future challenges," Shri Puri said.

Shri Puri encouraged the participants of GEO India 2024 to continue fostering innovation, embracing sustainability, and collaborating to address the challenges of the future.

In just two years, IEW becomes prominent part of global energy calendar: Petroleum Minister Hardeep Puri

"Government of India has undertaken landmark reforms in the upstream, midstream, and downstream sectors of Hydrocarbon industry in India", said Shri Hardeep Singh Puri, Minister of Petroleum & Natural Gas while speaking at an event. These reforms, which include the diversification of crude supplies, gas pricing reforms, and the opening up of NO-GO areas, Shri Puri said, aim to create a sustainable, affordable, and secure energy future for India. The Minister further highlighted amendments to the Oilfields Regulation and Development (ORD) Act and efforts to expand refinery capacities and increase ethanol blending in petrol.

The Minister was addressing the FIPI Oil & Gas Awards 2023 Ceremony, which celebrated excellence, innovation, and leadership across more than 20 award categories, including "Digitally Advanced Company of the Year," "Sustainably Growing Corporate of the Year," "Innovator of the Year," and "Best Startup in the Energy Sector." The awards also recognized outstanding individuals, such as the "Young Achiever of

the Year” in both male and female categories. Shri Suresh Gopi, Minister of State for Petroleum and Natural Gas & Tourism, Shri Pankaj Jain, Secretary, MoPNG and CMDs of various Oil/Gas PSUs were also present at the event.

Talking about India’s progress in the energy sector, Shri Puri stated, is evident in key achievements such as the reduction of fuel prices over a three-year reference period, making India the only country globally to achieve this. LPG cylinder prices in India are among the lowest worldwide, with costs as low as Rs. 6/day for PMUY households and Rs. 14/day for non-PMUY households. He also noted the expansion of refinery capacity from 215 MMTPA in 2014 to 256.8 MMTPA in 2024, with a target of 310 MMTPA by 2028. Furthermore, India is on track to increase its exploration acreage to 1 million square kilometers by 2030, with a 16% increase expected by 2025.

Shri Puri also highlighted the government’s success in increasing ethanol blending in petrol, from 1.53% in 2014 to 16% in 2024, with the goal of reaching 20% next year. This achievement places India as the second-largest economy in biofuel blending, following Brazil. The expansion of City Gas Distribution (CGD) coverage was also underscored, with 100% CGD area coverage expected in 2024, compared to just 5.5% in 2014.

The Minister noted that India’s energy landscape is rapidly evolving, with a surge in deeptech start-ups spurred by government initiatives and investor confidence. Indian entrepreneurs have filed more than 1,400 patents in deeptech in the past five years, and the country’s start-up ecosystem now ranks as the third-largest globally, with over 1 lakh start-ups and nearly 120 unicorns.

Speaking at the event, Shri Puri also congratulated all participants for making the second edition of India Energy Week (IEW) 2024 a resounding success. Speaking at the event, he announced that the next edition of India Energy Week (IEW) 2024-25 will be held at Yashobhoomi, Dwarka, New Delhi, from 11th to 14th February 2025. Shri Puri highlighted that IEW has rapidly become a significant global energy platform, attracting millions of dollars in business and establishing itself as the new meeting point for energy professionals worldwide.

In just two years, India Energy Week has cemented its place on the global energy calendar, owing to India’s rapid economic growth, expanding consumer base, and favorable investment climate. Shri Puri pointed out that India’s energy sector is increasingly recognized for its innovation and potential.

The Minister shared key highlights of the upcoming IEW 2025, noting that it will feature over 700 exhibitors, 105 conferences, and attract more than 70,000 delegates. In comparison, the 2024 edition saw participation from over 600 exhibitors and 45 strategic and 46 technical conferences. IEW 2025 will also expand to host 10+ country pavilions, further showcasing the global significance of India’s energy ecosystem. He called on all participants to treat IEW 2025 as more than just a conference, but as a movement towards creating a greener, smarter, and more resilient energy ecosystem.

The Minister also congratulated the awardees and nominees for their outstanding contributions, which continue to strengthen India’s progress towards energy self-reliance.

Ethanol Mixed with Petrol

The Government has been promoting blending of ethanol in petrol under the Ethanol Blended Petrol (EBP) Programme. The National Policy of Biofuels-2018, as amended in 2022, inter-alia advanced the target of 20% blending of ethanol in petrol to Ethanol Supply Year (ESY) 2025-26 from 2030. Public Sector Oil Marketing Companies (OMCs) have achieved the target of 10% ethanol blending in petrol in June, 2022 i.e., five months ahead of the target during ESY 2021-22. Blending of ethanol further increased to 12.06% in ESY 2022-23 and approx. 14.6% during ESY 2023-24. During the last ten years, ethanol blending in petrol by Public Sector OMCs has resulted in approximate savings of more than Rs. 1,08,655 crores of foreign exchange as on 30.09.2024.

The ethanol produced from sugar-based feedstock has helped sugar factories to reduce its surplus sugar inventory and generate revenue early to clear the dues of cane farmers. During the last ten years, EBP Programme helped in expeditious payment of approx. Rs. 92,409 crores to the farmers as on 30.09.2024. During the same period, EBP programme has also resulted in approximate savings of more than Rs. 1,08,655 crore of foreign exchange, crude oil substitution of 185 lakh metric tonnes and net CO2 reduction of about 557 lakh metric tonnes. It is anticipated that 20% ethanol blending in petrol is likely to result in payment of more than Rs. 35,000 crores annually to the farmers.

Steps by Government to ensure fair and reasonable prices of Petrol & Diesel for consumers

Government has been taking various steps to ensure fair and reasonable prices for consumers. Domestically, Petrol and Diesel prices have come down from Rs. 110.04 and Rs. 98.42 per litre in November 2021 to Rs. 94.77 and Rs. 87.67 per litre respectively (as on 18.11.2024, Delhi prices) as a result of reduction of Central Excise duty by the Central Government by a total of Rs. 13/litre and Rs. 16/litre on petrol and diesel respectively in two tranches in November 2021 and May 2022, which was fully passed on to consumers. Some State Governments also reduced state VAT rates to provide relief to citizens. In March, 2024, OMCs also reduced the retail prices of petrol and diesel by Rs. 2 per litre each, across the country.

Government of India also took several other steps to insulate common citizens from high international prices, which included diversifying the crude import basket, windfall taxes on export of petroleum products, invoking the provisions of Universal Service Obligation to ensure availability of petrol & diesel in domestic market, increasing the blending of ethanol in petrol, etc.

Recently PSU OMCs have carried out intra-state freight rationalisation. This has benefitted consumers located at remote areas, far from Petroleum Oil & Lubricants (POL) Depots in form of reduced Petrol and Diesel prices in remote parts within the states. This initiative has also reduced the difference between the maximum and minimum retail prices of Petrol or Diesel within a state.

Maharatna PSUs NTPC and ONGC Join Hands to form a JV Company

Maharatna PSUs NTPC and ONGC have collaborated to form a Joint Venture Company (JVC) through their Green Energy Subsidiaries (NTPC Green Energy Ltd. and ONGC Green Energy Ltd.) to further promote their interest in renewable and new energy arena.

Subsequent to the signing of the Joint Venture Agreement on 7th February 2024, during India Energy Week 2024, and obtaining the required statutory approvals from DIPAM and NITI Aayog, NGEL has submitted an application to the Ministry of Corporate Affairs for the incorporation of a 50:50 Joint Venture Company with OGL.

This JVC shall venture into various Renewable Energy (RE) and New Energy opportunities including Solar, Wind (Onshore/Offshore), Energy Storage (Pump/Battery), Green molecule (Green Hydrogen, Green Ammonia, Sustainable Aviation Fuel (SAF), Green Methanol), E-mobility, Carbon Credits, Green Credits, etc.

The JVC will also seek opportunities to acquire renewable energy assets and will also consider participation in upcoming offshore wind tenders in Tamil Nadu and Gujrat.

The strategic partnership between NGEL and OGL signifies a concerted effort towards advancing sustainable energy initiatives, aligning closely with the nation's ambitious goals for a greener future. Considering their domain expertise and resources, both entities are poised to contribute significantly to India's renewable energy landscape, driving innovation and fostering environmental stewardship.

Union Minister of Power and Housing & Urban Affairs Shri Manohar Lal unveils CESL's 'EV as a Service' Programme

Union Minister of Power and Housing & Urban Affairs Shri Manohar Lal launched 'EV as a Service' programme of Convergence Energy Services Limited (CESL), a subsidiary of Energy Efficiency Services Limited (EESL) at Major Dhyan Chand National Stadium.

The programme marks a significant step forward in advancing the adoption of electric cars in Central and State Government ministries/departments, CPSE's and institutions.

CESL's 'EV as a Service' programme addresses the rising demand for EVs within the government sector, with an ambitious goal of deploying 5,000 E-Cars over the next two years. By leveraging a flexible procurement model, the programme allows for the deployment of a variety of E-Car makes/models, enabling Govt. offices to choose E-Cars that best align with their operational requirements. It not only supports the government's environmental sustainability vision, but also aligns with India's ambitious goal of achieving net zero emissions by 2070.

Enabling EV adoption within government fleets, CESL is contributing significantly to cutting carbon emissions, reducing reliance on fossil fuels, and bolstering India's energy security. It may be noted that CESL has already deployed nearly 2000 nos. of E-Cars across India and is also facilitating the deployment of approx. 17,000 E-Buses.

Gracing the occasion, Shri Manohar Lal, Union Minister of Power and Housing & Urban Affairs, Govt. of India, said, "The 'EV as a Service' programme exemplifies CESL's dedication to sustainable innovation and showcases its ability to address the urgent need for clean mobility solutions. I commend CESL for not only driving change but for setting an inspiring example in our nation's journey toward greener transportation.

With initiatives like these, India moves closer to a future where clean energy is the norm, creating a lasting impact for generations to come.”

"The launch of 'EV as a Service' follows the recent introduction of the PM E-DRIVE Scheme, a national initiative aimed at fast-tracking India's shift to electric mobility," said Shri Vishal Kapoor, MD & CEO, CESL. "At CESL, the future of transportation is electric, and by facilitating EV adoption in government fleets, we are enabling large-scale emissions reduction and enhancing energy security for India. This programme aligns stakeholders - from manufacturers and fleet operators to policymakers and users - creating a collaborative ecosystem poised for growth. CESL is committed to the vision of an energy-efficient, low-carbon economy, and we are leading the charge by building an infrastructure that will stand as a benchmark for sustainable mobility."

The launch event saw an impressive turnout and featured an EV Exhibition and an EV rally comprising more than 100 electric vehicles from a wide array of segments, including e-bicycles, electric two-wheelers, three-wheelers, four-wheelers, e-tractors, e-mobile charging vans, e-cargo pickups, e-buses, and e-trucks. This rally highlighted the versatility and breadth of e-mobility solutions now available in India, underscoring CESL's commitment to fostering green, sustainable transportation solutions.

Several distinguished officers from Central Government Ministries/Departments such as the Ministry of Power, Ministry of Heavy Industries, Department of Revenue, Ministry of Housing & Urban Affairs attended the event. Further, various E-Mobility OEM's, think-tanks and EV enthusiasts attended the event.

Inauguration of first trilateral power transaction – from Nepal to Bangladesh through the Indian Grid

Union Minister for Power and Housing & Urban Affairs, Shri Manohar Lal, jointly inaugurated the power flow from Nepal to Bangladesh, along with Md. Fouzul Kabir Khan, Adviser, Ministry of Power, Energy and Mineral Resources, Government of Bangladesh and Mr. Dipak Khadka, Minister of Energy, Water Resources and Irrigation, Government of Nepal through a virtual event hosted by the Ministry of Energy, Water Resources and Irrigation, Government of Nepal. This historic occasion marks the first trilateral power transaction which has been carried out through the Indian grid.

The Government of India had announced its decision to facilitate the first trilateral power transaction from Nepal to Bangladesh, through Indian grid with an export of upto 40 MW of power during the visit of the former Prime Minister of Nepal, Mr. Pushpa Kamal Dahal 'Prachanda' to India from 31 May to 3 June 2023 . During the visit, both sides had expressed their commitment towards greater sub-regional cooperation, including in the energy sector, which would lead to increased inter-linkages between the economies for mutual benefit of all stakeholders.

Subsequently, a tripartite power sales agreement between NTPC Vidyut Vyapar Nigam, Nepal Electricity Authority and Bangladesh Power Development Board was signed on 3 October 2024 in Kathmandu.

The start of this power flow from Nepal to Bangladesh through India is expected to boost sub-regional connectivity in the power sector.

Central Electricity Authority approved the Uniform Protection Protocol for users of the Indian Grid for implementation on Pan India basis

National Power Committee (NPC) in consultation with RPCs prepared the Uniform Protection Protocol for users of Indian Grid for implementation on Pan India basis. The same was approved in 15th National Power Committee Meeting held on 14.11.2024 at Nagpur, Maharashtra under the chairmanship of Shri Ghansyam Prasad, Chairperson, CEA.

The meeting was attended by high level dignitaries of Power sector: Shri Hemant Jain, Member (GO&D), CEA, Shri Mr. S R Narasimhan, Chairman & Managing Director of Grid-India, Chairpersons of Regional Power Committees/Technical Coordination Committees of RPCs, Member Secretaries of RPCs and NPC, and Representatives from CTU and CEA.

As per IEGC, 2023, a uniform protection protocol to be there for the users of the grid for proper co-ordination of protection system in order to protect the equipment/system from abnormal operating conditions, isolate the faulty equipment and avoid unintended operation of protection system.

The Uniform protection protocol aims to ensure Grid stability, reliability, security and also greatly supports the Government of India's vision for integration of 450 GW Renewable Energy into the National Grid by 2030 and ambitious target of 2100 GW of Renewable energy by 2047.

Key features of the Uniform Protection Protocol:

- **Applicability:** The Uniform Protection Protocol shall be applicable to all Regional entities, State/Central/Private Generating Companies/ Generating Stations, SLDCs, RLDCs, CTU, STUs, Transmission Licensees and RPCs, connected at 220 kV (132 kV for NER) and above.
- **General Philosophy of Protection System:** The General Philosophy of Protection System covers the Objective, Design Criterion and other details.
- **Protection Schemes:** This Protocol addresses the protection requirements for thermal and hydro generating units, renewable energy generations (REGs), battery energy storage system (BESS), substations, transmission lines, and HVDC terminals.
- **Monitoring and Audits:**
 - **Disturbance Monitoring, Analysis, and Reporting:** The Purpose is to ensure that adequate disturbance data is available to facilitate Grid event analysis. The analysis of power system disturbances is an important function that monitors the performance of protection system, which can provide information related to correct behavior of the system, adoption of safe operating limits, isolation of incipient faults.
 - **Protection Audits:** As per the Central Electricity Authority (Grid Standards) Regulations, 2010, IEGC Grid Code Regulations 2023 and approved SOP for Protection System Audit.
 - **Performance Monitoring:** Monthly submission of protection performance indices by users/entities to RPCs and RLDCs.
- **Compliance Monitoring:** Non-compliance is reported to RPCs, and unresolved violations are escalated to the Commission for suitable directions.

During this meeting, various other key issues of Indian Power Sector such as transition to Five (5) minute Interface Energy Meters along with AMR system for PAN India, Unified Accounting Software for Energy Transactions, SOP for VOIP connectivity, Unified Real Time Dynamic State Measurement (URTDSM) project phase-II, MPLS Technology in ISTS Communication, Solution towards SCADA & Real Time data mismatch, Establishment of State-of-the-Art National Unified Network Management System (N-UNMS) in main & backup configuration integrating all the regional UNMSs, SOPs for Protection Audit, GD/GI/Tripping, Communication Audit of substations, Communication system outage planning of Indian Power System were also deliberated and further course of actions decided.

Union Minister Shri Manohar Lal flags off NTPC's Green Hydrogen buses at Leh

Shri Manohar Lal, Union Minister of Power and Housing & Urban Affairs, flagged-off the fleet of green hydrogen buses of NTPC at Leh in the presence of senior officials of Ministry of Power, Leh Administration and NTPC.

After the flag-off, Union Minister travelled 12 km in one of the H₂ buses from the H₂ filling station to the Leh airport. Union Minister congratulated NTPC for its unique contribution to the energy security and decarbonisation efforts of the country through adoption of hydrogen technologies at various fronts like mobility, blending with PNG, green methanol and its overall thrust on RE.

The Green Hydrogen Mobility Project at Leh comprises in-situ 1.7 MW solar plant, Green hydrogen filling station of capacity 80 kg/day and 5 hydrogen intra-city buses. Each bus can cover 300 km per single filling of hydrogen of 25 kg. This is also the world's highest altitude (3650m MSL) Green Hydrogen Mobility Project that is designed to operate in low density air, sub-zero temperature and can fill hydrogen at 350 bar pressure.

This station shall mitigate the carbon emissions of approx. 350 MT/year and contribute 230 MT/year of pure oxygen into the atmosphere which is equal to planting of approx. 13000 trees.

Potential of green hydrogen mobility solution in Ladakh is very strong considering the high solar irradiance with low temperature, a sweet spot for producing the solar power and green hydrogen efficiently. Production and utilisation of this green fuel at these locations would avoid the fossil fuel logistics and make the locations self-sufficient in terms of energy requirement.

NTPC is setting up more hydrogen mobility projects across India in addition to deployment of various green hydrogen technologies, rapidly scaling up of RE capacity including setting up of hydrogen hub in Andhra Pradesh.

Cabinet approved Investment Proposal for construction of 240 MW Heo Hydro Electric Project in Shi Yomi District of Arunachal Pradesh with an outlay of Rs.1939 crore and completion period of 50 months

The Cabinet Committee on Economic Affairs, chaired by the Prime Minister Shri Narendra Modi has approved investment of Rs.1939 crore for construction of Heo Hydro Electric Project (HEP) in Shi Yomi District of Arunachal Pradesh. The estimated completion period for the project is 50 months.

The project with an installed capacity of 240 MW (3 x 80 MW) would produce 1000 Million Units (MU) of energy. The Power generated from the Project will help improve the power supply position in the state of Arunachal Pradesh and will also help in balancing of the national Grid.

The Project will be implemented through a Joint Venture Company between North Eastern Electric Power Corporation Ltd. (NEEPCO) and the Government of Arunachal Pradesh. Government of India shall extend Rs.127.28 crore as budgetary support for construction of roads, bridges and associated transmission line under enabling infrastructure besides Central Financial Assistance of Rs.130.43 crore towards equity share of the State.

The state would be benefitted from 12% free power and another 1% towards Local Area Development Fund (LADF) besides significant infrastructure improvement and socio-economic development of the region.

The Project, in line with the aims and objectives of Aatmanirbhar Bharat Abhiyan, would provide various benefits to local suppliers/ enterprises/ MSMEs. During the construction phase, the project will require approximately 200 personnel from NEEPCO and around 400 workers from the contractor. In addition, the project will create significant indirect employment opportunities for the local community through various small contracts and services during its execution. The project would also provide employment during Operation & Maintenance. Furthermore, its development would create employment in sectors such as transportation, tourism, small-scale businesses.

Cabinet approved Investment Proposal for construction of 186 MW Tato-I Hydro Electric Project in Shi Yomi District of Arunachal Pradesh with an outlay of Rs.1750 crore and completion period of 50 months

The Cabinet Committee on Economic Affairs, chaired by the Prime Minister Shri Narendra Modi has approved investment of Rs.1750 crore for construction of Tato-I Hydro Electric Project (HEP) in Shi Yomi District of Arunachal Pradesh. The estimated completion period for the project is 50 months.

The project with an installed capacity of 186 MW (3 x 62 MW) would produce 802 Million Units (MU) of energy. The Power generated from the Project will help improve the power supply position in the state of Arunachal Pradesh and will also help in balancing of the national Grid.

The Project will be implemented through a Joint Venture Company between North Eastern Electric Power Corporation Ltd. (NEEPCO) and the Government of Arunachal Pradesh. Government of India shall extend Rs.77.37 crore as budgetary support for construction of roads, bridges and associated transmission line under enabling infrastructure besides Central Financial Assistance of Rs.120.43 crore towards equity share of the State.

The state would be benefitted from 12% free power and another 1% towards Local Area Development Fund (LADF) besides significant infrastructure improvement and socio-economic development of the region.

There will be significant improvement in infrastructure, including the development of around 10 kilometres of roads and bridges, for the project which shall be mostly available for local use. The district will also benefit from the construction of essential infrastructure such as hospitals, schools, vocational training institutes like ITIs, marketplaces, playgrounds, etc. to be financed from dedicated project funds of Rs.15 crore. Local populace shall also be benefitted from many sorts of compensations, employment and CSR activities.

CEA recognizes indigenously developed Surface Hydrokinetic Turbine Technology under Hydro Category

Central Electricity Authority (CEA) has recognized Surface Hydrokinetic Turbine (SHKT) technology under the Hydro Category to drive innovations and explore alternate technologies to achieve net zero emission targets and ensure sustainable development of power sector for the nation,

SHKT, uses kinetic energy of flowing water with practically zero potential head for generation of electrical energy unlike conventional units, which utilize potential energy of water through construction of suitable civil structures such as dam, diversion weir and barrages for creation of necessary 'Head'.

This technology is a solution that may support the power sector in meeting the growing demand for base-load, round-the-clock renewable energy, especially in areas with poor grid accessibility. Surface Hydrokinetic turbines are easy to install and cost-effective, with generation cost of ₹2-3 per unit. This technology provides win-win situation both for renewable energy buyers and generators.

Adoption of SHKT technology shall mark a significant milestone in leveraging India's extensive water infrastructure, including canals, hydropower tailrace channels, etc. for sustainable energy generation. This technology has huge potential in GW scale with lot of opportunities to harness renewable energy, leading to overall growth of power sector.

NHPC Partners with GGGI to Drive Clean Energy Innovations

In a significant step toward fostering sustainable development and combating climate change, NHPC signed a Memorandum of Understanding (MoU) with the Global Green Growth Institute (GGGI) at its Corporate Office, Faridabad on November 28th, 2024.

This collaboration aims to promote innovative clean energy solutions, focusing on agrivoltaics, green hydrogen, and sustainable financing strategies. These initiatives are part of NHPC's robust R&D efforts to address climate challenges while advancing India's transition to a low-carbon economy.

Under the partnership, NHPC and GGGI will work together to explore cutting-edge technologies, integrate renewable energy solutions with agricultural practices, and drive investments in green projects. The initiative also aligns with India's broader climate goals and commitment to renewable energy under the Paris Agreement.

The MoU marks the beginning of a strategic collaboration to pave the way for scalable and impactful green energy solutions. NHPC and GGGI reaffirm their commitment to creating a sustainable, energy-secure future for generations to come.

NHPC Limited is India's premier hydropower company and a Navratna Enterprise of the Government of India. With a strong portfolio of hydro, solar and wind projects, NHPC is committed to advancing the nation's renewable energy goals.

The Global Green Growth Institute is an international organization dedicated to supporting and promoting sustainable economic growth in developing and emerging countries by focusing on green energy and climate resilience initiatives.

ISA hosts the third edition of the High-level Conference on New Technologies for Clean Energy Transition

The International Solar Alliance, in a global collaboration with the Ministry of New & Renewable Energy, the Government of India, the Asian Development Bank, and the International Solar Energy Society, organised the third edition of the High-level Conference on New Technologies for Clean Energy Transition. This significant event took place on the sidelines of the Seventh Session of the ISA Assembly in New Delhi, uniting stakeholders worldwide.

The conference's overarching goal is to translate dialogue into action. Deep-dive sessions focusing on new-age solar technologies, emerging storage technologies, and unleashing solar's role in accelerating equitable economic, social, and environmental development formed the crux of the discussions.

In his opening remarks, Dr Ajay Mathur, Director General, ISA said, "Today's Conference and discussions are very timely. In a week, the world leaders will convene in Azerbaijan under the aegis of COP29 with two guiding goals: agreed to transition away from fossil fuels, triple renewable power and double energy efficiency by 2030. Both of these goals can be built on the foundations of efficient and clean technologies, hence underlining the importance of today's proceedings."

Mr Pralhad Joshi, Hon'ble Minister, New and Renewable Energy, India & President of the ISA Assembly, in his inaugural address, noted, "As the President of the International Solar Alliance, I would like to acknowledge that today the world stands united like never before, combining the global efforts towards the energy transition. The significance of advancing solar technology cannot be overstated as we move towards the clean energy transition. With the challenges posed by climate change, our collective efforts to innovate and implement this sustainable solution are more important than ever." He further added, "At the International Solar Alliance, we believe that together we can harness the power of the sun to drive the change and create a more sustainable future. I am happy that at a platform like this, important technological advancements are being deliberated. This conference has brought together policymakers, experts, industry leaders, highlighting our global awareness. Our goal is to drive real-world change and make significant progress toward achieving the climate targets through collaboration, innovation and knowledge sharing."

Mr Prashant Kumar Singh, Secretary, Ministry of New and Renewable Energy, Government of India stated, "Government of India (GoI) has committed to translating the ISA vision into action. GoI is actively supporting through financial and technical means to assist developing countries in expanding their solar power grids to meet their energy needs. Solar energy has had a visible impact on the Indian energy scenario during the last few years. In addition to large-scale solar power plants, solar energy-based decentralised and distributed applications have benefited millions of people in Indian villages by meeting their energy needs in an environmentally friendly manner. With the increased support of the Government of India policies and improved economics, the solar energy sector has become attractive from an investor's perspective."

Ms Mio Oka, Country Director, India Resident Mission, Asian Development Bank, noted, "We must ensure that growth is green, and it's our ADB's responsibility to facilitate emerging economies' access to

technologies and finance to attain green growth. The good news is that the cost of clean energy has rapidly declined, and the share of renewable energy has increased. The cost of solar PV has declined by over 80% in the last decade to about \$0.05 per kilowatt hour.”

Ms Viktoria Martin, President, the International Solar Energy Society, leaving a lead for the discussions to follow during the day said, “And I think this is the send-off idea for your discussion today, to think integrated planning in technology, to think about the diverse mix of storage that is needed to connect, for example, electricity generation to the other types of energy services, heating and cooling and transport, that are needed in our green and clean energy systems.”

An added attraction at the inaugural was the launch of the third edition of the World Solar Report series. Launched in 2022, the series provides a concise overview of global advancements, challenges, and trends in solar technology, markets, and investments. Key findings from the 2024 edition include:

World Solar Market Report Highlights Unprecedented Growth and Future Projections

The World Solar Market Report highlights a remarkable growth trajectory in the solar power sector.

- **Rise in Solar Capacity:** In just two decades, global solar capacity has exploded from 1.22 GW in 2000 to an astounding 1,418.97 GW in 2023—a staggering 40% annual growth rate. In 2023 alone, 345.83 GW of solar power was added, accounting for three-quarters of all new renewable capacity worldwide. Solar generation has surged similarly, rocketing from 1.03 TWh in 2000 to 1,628.27 TWh in 2023.
- **Solar Manufacturing to Exceed Demand with Over 1,100 GW by 2024:** By the close of 2024, the capacity for global solar manufacturing is projected to exceed 1,100 GW, which is more than twice the anticipated demand for PV panels. Solar cell prices have reached \$0.037/watt, while advanced mono TOPCon and mono PERC module prices have fallen below \$0.10/watt, indicating a trend towards greater affordability in solar technology.
- **Solar Industry Employment Boom:** The clean energy industry now fuels 16.2 million jobs, with solar leading the charge at 7.1 million—up 44% from 2022’s 4.9 million. And a striking 86% of these jobs are concentrated in just ten countries.
- **Future Forecasts:** Global solar capacity is set to skyrocket to between 5457 and 7203 GW by 2030, driven by Paris Agreement commitments. This surge underscores the massive infrastructure push needed to meet climate goals.

World Investment Report Unveils a Dynamic Shift in Global Energy Investments

The latest World Investment Report has significantly transformed global energy investments, highlighting a steadfast march towards sustainable energy solutions. Here are the key findings:

- **Exponential Growth in Energy Investments:** Global energy investments are set to soar from \$2.4 trillion in 2018 to a projected \$3.1 trillion in 2024, a steady climb at nearly 5% annually. Global clean energy investment now nearly doubles that of fossil fuels, set to leap from \$1.2 trillion in 2018 to \$2 trillion by 2024, marking a bold pivot toward renewables.

- The Solar Investment Surge: Investments in solar represented ~ 59% (USD 393 billion) of all RE investments (USD 673 billion), driven largely by drop in solar panel costs.
- APAC leads global solar investments: Region-wise, APAC is at the forefront of solar investments pouring USD 223 billion into solar in 2023. EMEA has experienced modest solar investment growth, with USD 91 billion in 2023, followed by AMER region with solar investments of USD 78 billion.

World Technology Report Highlights Breakthroughs in Solar PV Efficiency and Material Innovation

The World Technology Report highlights the rapid progress being made in the field of solar technology. These innovations are not only enhancing the efficiency and accessibility of solar power but are also paving the way for a more resilient and cost-effective power infrastructure. Key highlights from the report include:

- Record-Breaking Solar PV Panel Efficiency: Solar PV monocrystalline modules have hit a new high with record-breaking 24.9% efficiency, a major leap in maximizing solar energy potential. Multijunction perovskite cells are set to disrupt the solar panel industry, promising higher efficiency, lower production costs, and seamless integration with diverse surfaces—leaving traditional silicon panels in the dust.
- Solar Manufacturing Now Uses 88% Less Silicon per Watt Peak than in 2004 - The manufacturing process has undergone significant improvements, resulting in a drastic reduction in silicon usage—from consuming 16 gm/Wp in 2004 to 2 gm/Wp in 2023. This 88% decrease in silicon consumption not only reflects the strides made in optimizing material efficiency but also underscores the potential for further cost reductions and environmental benefits.
- Utility-Scale PV Costs Hitting New Low- The global weighted average LCOE for utility- scale Solar PV dropped by 90%- falling from USD 0.460/kWh in 2010 to USD 0.044/kWh in 2023. At country level, the drop ranges from 76%-93% over the same period.

Ministerial delegations of the ISA Member Countries, policymakers, experts, and industry leaders attended the Conference proceedings. The Conference was introduced in 2022 to drive real-world change and make significant progress toward achieving global climate goals by fostering collaboration and sharing knowledge among concerned stakeholders and key players.

The inaugural also witnessed the release of the ‘Readiness Assessment of Green Hydrogen African Countries’ report by ISA and Denmark.

Direct electrification cannot solve the decarbonisation requirements of industries that still rely on fossil fuels like coal, oil, or natural gas as feedstocks to produce commodities like steel, fertilisers, refined gasoline, and diesel fuel. Hence, green hydrogen, produced through the electrolysis of water powered by renewable electricity sources like wind, solar, and geothermal, emerges as a suitable replacement for fossil fuel-based energy sources.

Mr Emil S. Lauritsen, Head of Strategic Sector Cooperation, Embassy of Denmark, New Delhi, sharing his insights on the report, said, “This report is the first project under the umbrella of the memorandum of

understanding for the green hydrogen partnership, which the Embassy of Denmark has inked with the International Solar Alliance. The objective is to conduct a readiness assessment of the target countries: Egypt, Morocco, Namibia, and Egypt. The report focuses on three categories: country-specific parameters, financing requirements and possible financing methods. It also includes assessing risks and preparing plans to develop a green hydrogen economy in these countries. Under the partnership, the Ministry of Foreign Affairs of Denmark will also support ISA with three years of content, focusing on green hydrogen policy, regulation, and other components of the green hydrogen value chain.”

Green hydrogen provides a great avenue to monetise a country’s rich renewable resources (wherever available), aid the country in achieving industry decarbonisation, and generate sustainable jobs in the process. Countries have been identified based on their vast renewable energy potential and thus can potentially contribute significantly to developing the green hydrogen ecosystem.

Government of India invites Proposals for setting up Centres of Excellence for Research and Development on Green Hydrogen

The Government of India has invited Proposals for setting up Centres of Excellence (CoE) under Research and Development (R&D) Scheme of National Green Hydrogen Mission. The call for proposals (CfP) has been issued by Ministry of New and Renewable Energy (MNRE) on 4th November 2024.

The objective is to establish world-class Centres of Excellence for Green Hydrogen in India to foster innovation, promote sustainability, thereby enhancing energy independence in the long term. These CoEs will accelerate the transition to a low-carbon economy by advancing Green Hydrogen production, storage, and utilization technologies.

The CoEs will act as focal points for cutting-edge research, skill development, and knowledge dissemination. These CoEs will also facilitate collaboration among stakeholders, including industry, academia, and Government in order to drive innovations in Green Hydrogen technologies, leading to improved process efficiencies and new product development. These centres will aggregate and leverage expertise and resources to advance the entire Green Hydrogen ecosystem in the country.

MNRE had earlier released Guidelines on 15th March, 2024, for the implementation of R&D Scheme under the National Green Hydrogen Mission. The Guidelines can be accessed [here](#). It is expected that Public and Private entities including Research Institutions, Universities would form partnerships to submit proposals against this CfP. The Government has allotted Rs 100 crores for setting up such Centres, under the Green Hydrogen Mission.

The National Green Hydrogen Mission was launched on 4th January 2023, with an outlay of Rs. 19,744 crores up to FY 2029-30. It will contribute to India’s goal to become Aatma Nirbhar (self-reliant) through clean energy and serve as an inspiration for the global Clean Energy transition. The Mission will lead to significant decarbonization of the economy, reduced dependence on fossil fuel imports, and enable India to assume technology and market leadership in Green Hydrogen.

India's Renewable Energy Sector Achieves Significant Growth

The Ministry of New and Renewable Energy (MNRE) has released its latest data, highlighting substantial growth in India's renewable energy sector from October 2023 to October 2024. This progress underscores India's commitment to achieving its clean energy targets in line with the 'Panchamrit' goals set by Prime Minister Shri Narendra Modi.

India's total renewable energy installed capacity increased by a staggering 24.2 GW (13.5%) in a year, reaching 203.18 GW in October 2024 from 178.98 GW in October 2023. This significant rise aligns with India's ambitious targets in the field of RE sector. Including nuclear energy, the total non-fossil fuel capacity rose to 211.36 GW in 2024, compared to 186.46 GW in 2023.

Solar and Wind Power Surge

- **Solar Power:** The solar sector saw a remarkable increase of 20.1 GW (27.9%), growing from 72.02 GW in October 2023 to 92.12 GW in October 2024. The combined total solar capacity, including projects under implementation and tendered, now stands at 250.57 GW, a significant rise from 166.49 GW last year.
- **Wind Power:** Wind energy also demonstrated steady growth, with installed capacity increasing by 7.8%, from 44.29 GW in October 2023 to 47.72 GW in 2024. Total capacity in the pipeline for wind projects has now reached 72.35 GW.

Capacity Additions

From April to October 2024, India added 12.6 GW of renewable energy capacity. In October 2024 alone, 1.72 GW was installed, marking an accelerated shift towards renewable energy.

The renewable energy projects under implementation and tendered saw significant expansion, with 143.94 GW under implementation and 89.69 GW tendered as of October 2024. This is a notable increase from 99.08 GW under implementation and 55.13 GW tendered as of October 2023, ensuring consistent progress towards India's clean energy targets.

Hydro and Nuclear Contributions

As of October 2024, large hydro projects contributed 46.93 GW to India's renewable portfolio, while nuclear power capacity contributed 8.18 GW. These contributions strengthen the diversity and resilience of India's renewable energy mix, supporting the country's comprehensive approach to green energy transition.

Union Minister Pralhad Joshi Inaugurates "Chintan Shivir", Calls for Coordinated Efforts to Achieve 500 GW Renewable Energy Capacity by 2030

Union Minister of New and Renewable Energy, Shri Pralhad Joshi, inaugurated the "Chintan Shivir" in Bhubaneswar, Odisha, a significant two-day event organized by the Ministry of New and Renewable Energy (MNRE). The gathering of key government leaders, industry experts, and stakeholders aims to develop strategies for achieving India's ambitious target of 500 GW of renewable energy capacity by 2030.

In his inaugural address, Shri Pralhad Joshi emphasized that the target of 500 GW by 2030 is not merely a goal but a clarion call for action. He highlighted India's progress, noting that the country has already achieved 212 GW from non-fossil fuel sources, placing it on track to exceed the 2030 target. The Minister stressed the importance of concerted, collaborative efforts among all stakeholders to overcome challenges and expedite progress in the renewable energy sector.

Shri Joshi further outlined key issues raised by stakeholders, including challenges related to land acquisition, transmission infrastructure, power purchase agreements, energy storage, and other critical factors affecting the sector. Minister Joshi said, "Chintan Shivir should arrive at a comprehensive solution to all issues and create a roadmap ahead with its collective experience and wisdom to achieve the target of 500 GW by 2030".

Addressing the ongoing efforts of the government, Shri Joshi noted that India, under the leadership of Prime Minister Shri Narendra Modi, has earned global trust for its stability and potential, positioning the country as a land of opportunity in the renewable energy sector. He highlighted government initiatives such as PM Suryaghar Muft Bijli Yojana and PM Kusum, which not only contribute to the country's renewable energy ambitions but also create employment opportunities. The Minister proposed the formation of a task force, in consultation with the Ministry of Power, to align the efforts of all stakeholders towards meeting the 500 GW target.

Shri Joshi also expressed optimism regarding the commitments made during the RE-Invest Summit, which collectively amount to over ₹32 lakh crore and 540 GW of renewable energy projects. He emphasized that these commitments could be translated into reality through concerted collaboration among industry players, government bodies, and financial institutions.

In his remarks, Union Minister of State for New and Renewable Energy and Power, Shri Shripad Yesso Naik, underscored the pivotal role of the renewable energy sector in India's journey towards energy independence by 2047. He assured that the Government of India would continue to support technological advancements and innovations in the clean energy sector.

Deputy Chief Minister of Odisha, Shri Kanak Vardhan Singh Deo, highlighted the state's substantial potential in solar, wind, battery storage, and pumped storage projects. He reaffirmed Odisha's commitment to working in close collaboration with the Central Government to meet India's renewable energy targets.

Shri Pankaj Agrawal, Power Secretary spoke about the various challenges facing the sector, particularly in transmission and energy storage. He urged the Chintan Shivir participants to focus on identifying practical solutions to address these issues.

Shri Prashant Kumar Singh, Secretary, MNRE, reiterated the Ministry's commitment to understanding and addressing the challenges of the renewable energy sector. He also acknowledged that organizing the Chintan Shivir was one of the first priorities given to him by Union Minister Joshi, along with the RE-Invest initiative, to ensure the development of policies that are simple, clear, and implementable.

Additional Secretary, MNRE, Sudeep Jain extended a vote of thanks to all the stakeholders of the Chintan Shivir.

The Chintan Shivir is set to provide a platform for industry leaders, financial institutions, industrialists, CEOs, and key officials from Central and State Governments to deliberate on the emerging challenges and opportunities in the renewable energy sector through thematic sessions and collaborative discussions.

The Chintan Shivir marks a significant step in India's ongoing efforts to transform its renewable energy landscape and achieve its long-term energy sustainability goals.

Dedicated Task Force to Be Formed To Achieve 500 GW by 2030: Union Minister Pralhad Joshi

Union Minister of New and Renewable Energy Shri Pralhad Joshi announced that a dedicated task force with all stakeholders will be set up by the Ministry of New and Renewable Energy (MNRE) in collaboration with the Ministry of Power to achieve the goal of 500 GW by 2030. The Minister was addressing the valedictory session of the two-day Chintan Shivir event organised by MNRE in Bhubaneswar, Odisha.

The Union Minister emphasized the need to install 288 GW of renewable energy capacity over the next six years, requiring a substantial investment of ₹42 lakh crore, including transmission infrastructure. This requires all stakeholders to work together to solve the various challenges in the RE sector, he said.

Union Minister Joshi highlighted that the event brought together 117 industry leaders and 67 representatives from states and PSUs, with participation from 12 major renewable energy-producing states. He reiterated India's commitment to the "Panchamrit" goals announced by Prime Minister Narendra Modi, emphasizing the 2030 target of 500 GW of renewable energy capacity.

The Minister also said that MNRE will organize hackathons for startups in the RE sector, with assured offtake to promote indigenization of renewable energy technologies and solutions. A new Joint Centre of Excellence for R&D will also be established in collaboration with the Ministry of Power to foster innovation and technological advancements in the RE sector. The Minister called for the early finalization of Power Purchase Agreements (PPAs) and strict enforcement of Renewable Purchase Obligations (RPOs) to ensure the success of renewable energy projects.

Shri Joshi noted Odisha's immense renewable energy potential, with 140 GW of solar capacity and significant opportunities in green hydrogen, owing to its long coastline and port infrastructure. The Centre aims to develop Odisha as a major hub for renewable energy and explore the scope of green hydrogen production in the state. The potential for floating solar panels in Odisha will also be explored, he said. He also highlighted that a 6,000 MW manufacturing capacity for production of solar modules, solar cells & ingot-wafer at Dhenkanal District, Odisha with expected investment of around Rs. 9,000 crore is being set up by an agency. He also said that another agency is setting up 1,000 MW manufacturing capacity for production of solar modules & cells, at Infovalley-II, Khorda, Bhubaneswar, Odisha, with expected investment of around Rs. 730 crore.

Union Minister Joshi also highlighted that PM Surya Ghar Yojana will achieve over 5 lakh installations by the end of November 2024. He added that suggestions to expand the Production Linked Incentive (PLI) scheme for the domestic manufacturing of solar modules and cells are being considered.

Concluding his address, the Minister said, “We leave this Shivir not only with a stonger sense of purpose but also with a more refined and comprehensive roadmap than we had two days ago”

Deputy Chief Minister of Odisha Shri Kanak Vardhan Singh Deo stated that the Government of Odisha stands with the Union Government in meeting the ‘Panchamrit’ targets set by Prime Minister Shri Narendra Modi.

Secretary MNRE Shri Prashant Kumar Singh noted that the Chintan Shivir enabled the successful exchange of ideas and that the Ministry is committed to strong inter-ministerial coordination to solve the various challenges in the sector. Principal Energy Secretary Odisha Shri Vishal Kumar Dev also addressed the event. Additional Secretary Shri Sudeep Jain extended a vote of thanks to all stakeholders who attended the session.

The two-day Chintan Shivir 2024 kicked off with full vigour on November 14, 2024, at Bhubaneswar, Odisha, discussing the critical challenges in the RE sector as outlined by Union Minister Shri Pralhad Joshi in his inaugural address. Over two days, 17 sessions encompassing a range of critical topics such as solar and wind energy deployment , green hydrogen, energy storage, land evacuation and transmission planning and policy development, were held to achieve ambitious goal of 500 GW of non-fossil fuel energy by 2030. These sessions were attended by leading decision-makers, financial institutions, industrialists, CEOs, and key officials from central and state governments who are integral to India's renewable energy journey.

SECI signed MoU to promote Green Hydrogen initiatives

Solar Energy Corporation of India Ltd (SECI), under Ministry of New and Renewable Energy, signed a MoU with H2Global Stiftung to establish a collaborative framework to promote Green Hydrogen initiatives. This aims to enhance knowledge exchange on market-based mechanisms and foster cooperation between India and importing countries, thereby contributing to the global advancement of the green hydrogen economy.

This collaboration offers India the opportunity to work on joint tender design concepts, particularly in structuring joint tenders that aligns with India’s ambition to become export hub of Green Hydrogen and its derivatives. The cooperation may provide valuable insights into global hydrogen market dynamics, including trade logistics and stakeholder engagement, which can be instrumental in furthering India’s green hydrogen initiatives.

Research, analysis & compilation by:

Economic Policy & Planning Team - FIPI

Email: pankhuri@fipi.org.in

Note: The information contained herein is compiled from various sources considered reliable, but its accuracy and completeness are not warranted, nor are the opinions and analyses that are based on it. FIPI is not responsible for any errors or omissions, nor shall it be liable for any loss or damage incurred by reliance on information or any statement contained herein. While reasonable care has been exercised to ensure that no copyrights are infringed, in case there is any omission or oversight in this regard, we may please be informed immediately.