



Fuel consumption increased 4.6% to record high in FY24

Fell 0.6% in March

Fuel consumption in India, a proxy for oil demand, increased 4.6 per cent, to hit a record high of 233.32 million tonne (mt) in FY24. This was lower than the 10.57 per cent rise seen in FY23.

The demand fell by 0.6 per cent on an annual basis in March as a result of lesser petroleum coke use, data released by the Petroleum Planning and Analysis Cell (PPAC) has shown. Consumption of fuel was 21.09 mt in March, down from 21.22 mt in March 2023.

The monthly numbers were pulled down by the lower consumption of petcoke, a by-product created by the refining of bitumen into crude oil. Used in the manufacturing of steel, glass, paint, and fertilizers, petcoke usage fell 16.8 per cent in March to 1.63 mt.

Oil demand usually picks up late February, and rises in tandem with the temperature. Case in point, consumption rose

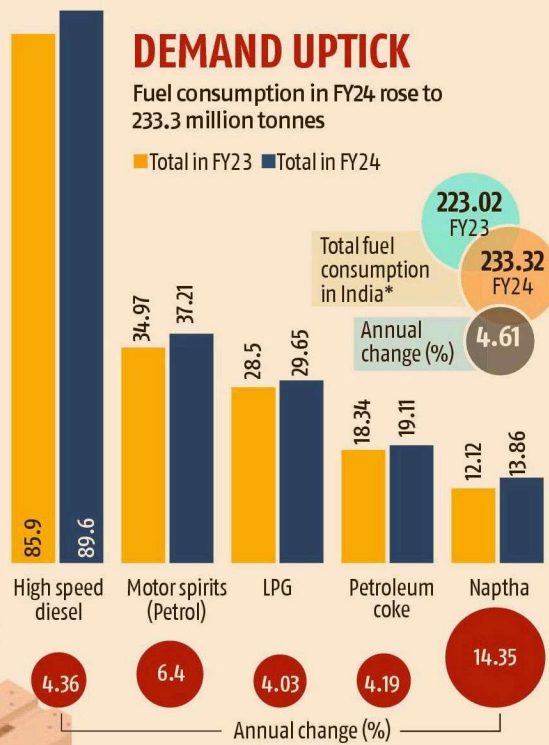
by 13.7 per cent in March, on a sequential basis. Sales of diesel, the most used fuel in the country, rose 3 per cent to 8.03 mt in March. In the past 12 months, sales had reached an all-time high of 8.21 mt in May, 2023. Petrol sales also reached a four-month high, rising 5.1 per cent to 3.14 mt in October. Sales stood at 2.99 mt in the same month of the previous year. **SUBHAYAN CHAKRABORTY**



DEMAND UPTICK

Fuel consumption in FY24 rose to 233.3 million tonnes

■ Total in FY23 ■ Total in FY24



All figures in million metric tonnes; Note: Figures do not add up due to other items contributing to total list
Source: Petroleum Planning and Analysis Cell (PPAC)

Heat affects India's aim to move from coal to renewables

While power availability determines our ability to deal with heat waves, high heat affects what sources of power are available to use

DATA POINT

Vasudevan Mukunth & Sambavi Parthasarathy

In what many would have hoped was a Fool's Day joke, the India Meteorological Department (IMD) said on April 1 that India will have more than the 'usual' number of days with heat waves in the forthcoming summer. The forecast comes against the backdrop of an impending water crisis in the south, Lok Sabha polls, and rising food inflation.

Higher heat is bad for crop yield (to different degrees depending on the crop), agricultural workers' productivity, and the availability of water. **Maps 1A and 1B** depict the probability of maximum and minimum temperatures, respectively, the IMD expects for April-June 2024. It predicted "above-normal" temperatures for the month, with a 55%-65% probability in one half of the country and over 65% in the other half. Very few parts are likely to record normal or below normal temperatures.

Heat increases power demand in urban and industrial centres; makes the consequences of outdoor work, especially at construction sites, deadly; overwhelms health service providers by its effects on the very young and the very old; and places a premium on access to clean, cool water, indoor ventilation, and indoor bathrooms. The availability of power undergirds our ability to respond to all these effects of heat (**Chart 2**). The chart shows the average evening peak-hour demand met in March across years. In March 2024, the peak demand reached a new high of 190 GW.

A lot of this power comes from coal-fired plants. Coal is easily stored and has a high load factor, and these plants meet both peak and off-peak demands. The government is targeting 500 GW of power generation capacity from

renewable energy sources by 2030 and has committed to producing 50% of its power from non-fossil-fuel energy sources by the same year. A big chunk of this addition will be in the form of solar power. But because solar output is intermittent and power storage capacity is still being established, peak demand has been met with coal. **Chart 3** shows the gross electricity generated using coal in India and coal's share in total electricity generated. The latter has remained 70-74% since at least FY16.

The most commercially viable forms of energy storage in India are currently battery-based storage and pumped hydro storage (PHS). PHS works like a hydroelectric power-generation facility in most respects except pumping the water from a lower to a higher elevation using off-peak power and running the turbines to load-balance the grid during peak power, among others. However, both hydroelectric and PHS facilities are undermined by water shortage – which is the case during periods of intense heat, when water demand for other needs is higher. **Chart 4** shows the gross electricity generated using renewable sources in India and the share of renewable sources in total electricity generated. The share of renewables (solar, hydro, wind, etc.) has remained 20-25% since at least FY16.

While the effects of climate change are hard to predict, especially at longer timescales and smaller spatial resolutions, concerns about the underperformance of dams India is building in the sub-Himalayas in the event of high heat and water stress persist for this reason. Thermal power isn't free of this necessity either: according to one analysis by the World Resources Institute, "India lost about 14 terawatt-hours of thermal power generation due to water shortages in 2016." All these challenges add to the multifaceted nature of extreme weather in India. Ready or not, the heat is on.

A (load) balancing act

The data were sourced from the Centre for Monitoring Indian Economy, GRID-INDIA and the India Meteorological Department



Map 1: Probability of maximum and minimum temperatures the IMD expects for April-June in 2024

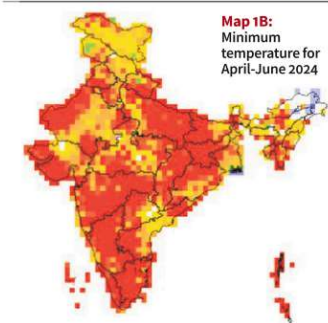
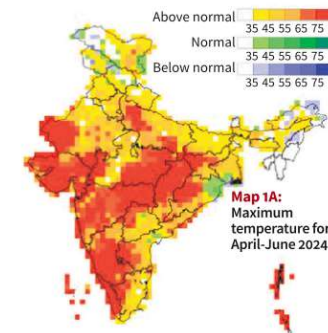


Chart 2: The chart shows the average evening peak-hour demand met in March in gigawatt (GW), across years

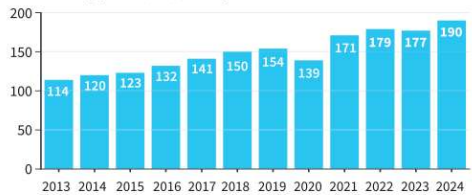


Chart 3: The chart shows the gross electricity generated using coal in billion kWh (left axis) and its share in total electricity generated in % (right axis)

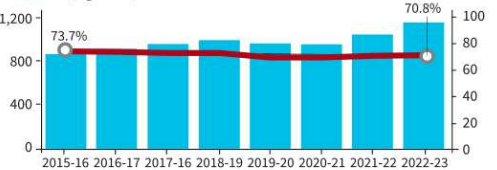
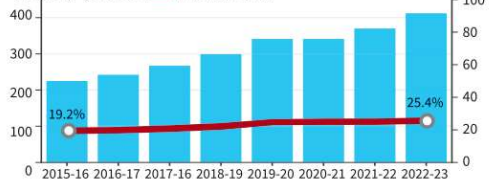


Chart 4: The chart shows the gross electricity generated using renewable sources in billion kWh (left axis) and its share in total electricity generated in % (right axis)





India's fuel demand hits new FY record

Reuters

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NEW DELHI

India's fuel consumption fell 0.6% year-on-year (y-o-y) in March, but demand for the 2024 financial year was up about 5%, primarily driven by higher automotive fuel and naphtha sales.

Total consumption, a proxy for oil demand, totalled 21.09 million metric tonnes (4.99 million barrels per day) in March, down from 21.22 million tonnes (5.02 mbpd) last year, preliminary data from the Petroleum Planning and Analysis Cell (PPAC) of the oil ministry showed on Saturday.

However, fuel demand for the 2024 financial year, ending in March, hit a record high of 233.276 million tonnes (4.67 mbpd) compared to 223.021 million tonnes (4.48 mbpd) a year earlier.

Sales of diesel, mainly used by trucks and commercially run passenger vehicles, rose 3.1% y-o-y to 8.04 million tons in March and was up 4.4% for the previous fiscal year.

Sales of gasoline in March rose 6.9% year-on-year to 3.32 million tonnes and were up 6.4% for the fiscal year.

Sales of bitumen, used for making roads, were largely steady in March, but were up 9.9% for the fiscal year.

Sales of cooking gas, or liquefied petroleum gas, rose 8.6% to 2.61 million tonnes.

India's fuel demand scales record high in 2023-24

IANNS / New Delhi

India's consumption of petroleum products such as diesel, petrol, LPG and bitumen went up by 5 per cent to touch a record level of 233.276 million tons during the financial year that ended on March 31, 2024, according to data compiled by the Ministry of Petroleum and Natural Gas.

The consumption of petroleum goods in 2022-2023 stood at 223.021 million tons.

Sales of diesel, mainly used by trucks, buses and the agriculture sector increased by 4.4 per cent in 2023-24 compared to the previous financial year, reflecting the higher level of economic activity in the country.

The demand for petrol rose by 6.4 per cent during the year with the sales of cars and two-wheelers going up during the



year.

Sales of bitumen, used for making roads, were up 9.9 per cent for the fiscal year as the government undertook big infrastructure projects to spur growth in the economy. Naphtha which is used for making fertilisers also registered a higher growth in sales during the year.

However, for the month of the path the total consumption of petroleum products totalled 21.09 million metric which was lower than the 21.22 million tons consumed in the previous year.



Petroleum dealers want ECI to exempt cash movement

Petroleum dealers have appealed to the Election Commission of India (ECI) to permit them to deposit cash at banks generated from daily sales without any hindrance. "Seek permission to exempt us from the squads confiscating our hard earned money which if not deposited [in bank] will result in supplies getting blocked by the oil marketing companies," Consortium of Indian Petroleum Dealers said in a letter to the Chief Election Commissioner on April 8.

DESPITE NARROWING DISCOUNTS & SANCTIONS...

Share of Russian Oil in India's Imports Rises to 35% in FY24

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New Delhi: Russia captured a larger share of India's crude imports in the just-ended fiscal year despite narrowing discounts on its oil and sanctions imposed by G7 nations due its invasion of Ukraine.

The share of Russian oil in India's total imports rose to 35% in 2023-24 from 23% in the previous year, according to energy cargo tracker Vortexa. During the year, all other key suppliers, including Iraq, Saudi Arabia, UAE, and the US lost share in the Indian market. Iraq's share fell to 20% (from 21%). Similar drops were noted for Saudi Arabia (15% from 17.5%), UAE (6% from 9%), and the US (3.5% from 5.5%).

Russia supplied 1.57 million barrels a day (mb/d) in FY24, up from 1mb/d in the previous year. Iraq's supply of 0.89 mb/d in 2023-24 was lower than 0.95 mb/d in the previous year. Saudi's supply fell to 0.69 mb/d from 0.78 mb/d.

"What has ensured Russia's dominance in the Indian market is discount. Otherwise, why would Indian refiners buy from Russia? It takes much longer and costs much more to ship oil from Rus-

sia to India," said an oil industry executive, asking not to be named. Discounts on Russian oil have, meanwhile, dropped sharply from the days immediately after the start of the Ukraine war in February 2022. Urals, the flagship Russian crude, was sold at a discount of as much as \$30 per barrel to Brent, the international benchmark in March 2022. Prior to the war, the differential was barely a dollar or two. For Indian state refiners looking to source cheaper Russian crude without having to deal with the challenges of shipping and insurance, the discounts were much lower at around \$12-13 per barrel. Within months, this discount narrowed to \$5-7. For the past few months, it has shrunk further to \$2-3 per barrel but has remained attractive for refiners who fight for every cent in crude purchase.



GETTY IMAGES

Will e-mobility go the biofuel way?

ROUGH ROAD. EVs' growth may suffer due to problems of battery availability and disposal, just as biofuel has been hit by feedstock constraint



GETTY IMAGES/ISTOCKPHOTO



SANJIB POHIT
CHETANA CHAUDHURI

E-mobility seems to be the buzzword in India now. Almost every other day, some news comes out on how much progress India has made in the use of electric vehicle in the transport sector and how it helps in reducing carbon emission. While the progress in the use of e-vehicle is a fact, the carbon saving due to use of the same is highly exaggerated for the simple fact that India is still heavily dependent on fossil-based electricity for recharging e-vehicles.

Thus, unless we can tilt the balance sharply in favour renewables-based electricity, there will be a net increase in carbon emissions, as per IEA analysis, when considering life-cycle emissions. Moreover, as e-vehicles weigh more than internal-combustion (IC) vehicles, it may lead to higher tyre-related particulate emissions, even though it removes tailpipe emission of IC-vehicles.

Range anxiety, in terms of availability of charging infrastructure for an e-vehicle is a concern in India, especially in rural/remote areas and highways, and also the charging time is longer than refuelling an IC vehicle. Setting up a

charging station is capital intensive, both in terms of land and technology. Widespread adoption of e-vehicle can affect electricity grids, especially at peak hour of demand. Battery swapping, where a depleted battery can be replaced with a pre-charged one, can save time for full charging, but the technology is yet at a nascent stage in India, and significant investment and co-ordination among the stakeholders are required to develop the infrastructure.

Additionally, it also requires standardisation of the battery design, efficient testing and compliance for compatibility adherence. With the growth of e-vehicles, there is a need to increasingly focus on supply-chain related issues, particularly batteries. The manufacture of batteries for e-vehicles is growing at a much slower pace than the adoption of vehicle use, and thus India is following an import dependent pathway. This is a very risky proposition.

As all countries move towards e-mobility and most of them bank on imports for sourcing of battery, the prices of batteries may skyrocket in the coming years, especially as some of the

The EU has announced that CBAM will be expanded to other sectors. Most likely e-waste, particularly batteries, will be on top of their agenda.

raw materials are sourced from limited geographic regions. Thus, near self-sufficiency in batteries is a must for faster adoption of e-vehicles. This would not only safeguard India from the vagaries of global battery price, just like crude oil prices, but will also pave the way for growth of jobs in the sector. Surely, the job prospects will be higher if the domestic supply chain of e-vehicles is developed as far as possible.

CBAM EFFECT

With growth of e-vehicles, the disposal of batteries will be a matter of environmental concern. India is not paying enough attention to this. It appears India has yet to learn the lesson from the CBAM (Carbon Border Adjustment Mechanism) experience. Looking back, developing countries like India were quite happy when 'dirty' industries from the EU moved to their shores following the Kyoto Protocol. Three decades later, the EU comes up with CBAM, which is likely to affect some of our industries. The EU has already announced that the reach of CBAM will be expanded to other sectors. Most likely e-waste, particularly batteries, will be on top of their agenda. The EU's policy is stringent on the same and to create a level-playing field, it will expect partner countries to be on the same page in this respect.

A decade back, the kind of hype currently being witnessed in the case of e-mobility was observed in the case of biofuel. Down the line, however, we are

yet to achieve 20 per cent blending target, even though at one point the government gave tax incentives for flexi-IC vehicles so that it is technically possible to run a vehicle on 100 per cent biofuel, just like in Brazil.

However, biofuel growth did not take off like in Brazil. The weakness in feedstock for biofuel was the real bottleneck, even though India is self-sufficient in other parts of the supply chain for biofuel.

On the jobs front, e-mobility is no match to the biofuel sector. However, not much attention has been paid to increase the feedstock supply of biofuel by way of scientific research to increase the oil-bearing capacity of biofuel feedstock. While India has achieved success in food crops through the Green Revolution, this sector has not receive similar attention. Productivity, and not land, probably is the principal constraint for its growth.

Unless sufficient attention is paid to supply bottlenecks and the battery disposal issue, e-mobility may go the biofuel route. A collective and co-ordinated effort is required from the government, industry and other stakeholders to develop infrastructure, facilitate a supply-chain that includes domestic manufacturing, increase awareness about battery disposal, and incentivise adoption to cater to the increasing demand for fuels triggered by a large and growing population and expansion of urbanisation in the country.

The writers with NCAER. Views are personal

रिपोर्ट

सऊदी अरब की राष्ट्रीय तेल कंपनी अरामको उत्सर्जन में शीर्ष पर, भारत की कोल इंडिया शीर्ष 10 में

दुनिया में 80% कार्बन उत्सर्जन के लिए 57 कंपनियां जिम्मेदार

अमर उजाला नेटवर्क

नई दिल्ली। पेरिस समझौते के बाद से दुनिया में जीवाश्म ईंधन की वजह से हुए 80 फीसदी कार्बन डाइऑक्साइड (सीओ2) उत्सर्जन के लिए 57 कंपनियां और उत्पादक जिम्मेदार हैं। ये कंपनियां दुनियाभर में जीवाश्म ईंधन और सीमेंट उत्पादन से जुड़ी हैं।

लंदन स्थित थिंक टैंक इन्फ्लुएंस मैप की ओर से जारी विश्लेषण के अनुसार, शीर्ष उत्सर्जकों में पहले स्थान पर सऊदी अरब की राष्ट्रीय तेल कंपनी सऊदी अरामको रही, जो 2016 से 2022 के बीच वैश्विक स्तर पर हुए कुल सीओ2 उत्सर्जन के 4.8 फीसदी के लिए जिम्मेदार थी। दूसरे स्थान पर रूस की गैज़प्रॉम रही। कार्बन मैजर्स दुनिया



ये कंपनियां जिम्मेदार

रिपोर्ट के अनुसार जिस 1,42,100 करोड़ मीट्रिक टन सीओ2 उत्सर्जन को ट्रैक किया गया है, उसके 31 फीसदी (44,000 करोड़ मीट्रिक टन) के लिए शेवॉन, एक्सॉनमोबिल और वीपी प्रमुख हैं। वहीं, 33 फीसदी (46,500 करोड़ मीट्रिक टन) के लिए सऊदी अरामको, गैज़प्रॉम, कोल इंडिया और नेशनल ईरानी ऑयल कंपनी प्रमुख हैं। शेष 36 फीसदी (51,600 करोड़ टन) के लिए राष्ट्र और राज्य के अधीन कंपनियां जिम्मेदार हैं।

में तेल, गैस, कोयला और सीमेंट उत्पादन से जुड़ी सबसे बड़ी कंपनियों का डाटाबेस है। यह जीवाश्म ईंधन और सीमेंट उत्पादन और उत्पादों के उपयोग से होने वाले उत्सर्जन को मापने में मदद करता है। विश्लेषण के

सूची में भारत की चार कंपनियां

1854 से 2022 के बीच सीओ2 उत्सर्जन में योगदान देने वाले दुनिया के 122 प्रमुख तेल, गैस, कोयला और सीमेंट उत्पादकों की सूची में भारत की चार कंपनियों को भी शामिल किया गया है। इसमें कोल इंडिया को 10वें स्थान है। कोल इंडिया इस दौरान हुए वैश्विक सीओ2 उत्सर्जन में 1.49 फीसदी (2,939.1 करोड़ मीट्रिक टन) के लिए उत्तरदायी है। इसके अलावा ऑयल एंड नेचुरल गैस कॉर्पोरेशन (ओएनजीसी) 46वें स्थान पर है। इसी तरह सिंगरेनी कोलियरीज 61वें और अदाणी एंटरप्राइजेज 118वें स्थान पर हैं।

अनुसार, अधिकतर मेगा उत्पादकों ने पेरिस जलवायु समझौते के बाद जीवाश्म ईंधन उत्पादन और संबंधित उत्सर्जन में पिछले सात वर्षों की तुलना में वृद्धि की है। इस अवधि के दौरान 100 में से 58 कंपनियों के

उत्सर्जन में वृद्धि देखी गई। सबसे ज्यादा वृद्धि एशिया में हुई। एशियाई देशों की 15 में से 13 कंपनियों ने 2009 से 2015 की तुलना में 2016 से 2022 के बीच करीब चार फीसदी ज्यादा उत्सर्जन किया।