

WAIVERS, TREATMENT SIMILAR TO ADIA LIKELY FOR PUBLIC INVESTMENT FUND

'India considers tax breaks for Saudi Arabia's sovereign wealth fund PIF'

PRASANTA SAHU
NEW DELHI, MAY 4

THE CENTRE is considering tax reliefs for Saudi Arabia's sovereign wealth fund, as a means to facilitate the proposed \$100-billion investments by the West Asian Kingdom in the country's infrastructure and energy sectors.

According to official sources, the proposals under consideration include a tax holiday of up to 10 years for Saudi Public Investment Fund (PIF) and further streamlining of procedures to make it easier for it to claim tax exemption on dividend, interest, and long-term capital gains (LTCG) on investments in infra-assets.

PIF may be given a treatment similar to Abu Dhabi Investment Authority (ADIA), which gets specific tax benefits under the Income Tax Act.

During Prime Minister Narendra Modi's recent visit to Riyadh, talks were held on the Gulf country's investment plans

'TAX HOLIDAY OF UP TO 10 YEARS LIKELY'

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for India, as it steps up investments across the world, and diversifies into sectors other than petroleum.

PIF, one of the largest sovereign wealth funds in the world, presides over assets worth \$925 billion. Despite being such a big source of long-term patient capital, its exposure to India is currently limited to a few ventures, including \$1.5 billion in Jio Platforms and \$1.3 billion in Reliance Retail Ventures.

"Saudi Arabia wants tax exemption for their investments in infrastructure assets in India, including refineries. It is likely to get wider exemptions, the details are being worked out," an official aware of the matter said.

A High-Level Task Force (HLTF) was constituted in 2024 for promoting investment flows between the two countries. Saudi Arabia has shown interest in investing in India in multiple areas, including energy, petrochemicals,

infrastructure, technology, fintech, digital infrastructure, telecommunications, pharmaceuticals, manufacturing and health.

Besides tax exemptions under Section 10(23FE) of the Act, Saudi investments could also get tax holidays under Section 80IA. "Depending on what investments they make and how, the tax exemptions will be worked out," the official added. Tax holiday on profits under the Section 80IA could be up to ten years.

Section 10(23FE) exempts SWFs and global pension funds from taxes arising on interest, dividends, and LTCGs related to infrastructure investments made in India during specified periods. ADIA and its wholly owned subsidiaries are specifically mentioned in the Act for the exemption. While PIF is also eligible under this section to get tax benefits like other SWFs, it wants a treatment similar to ADIA. So, PIF may be included under Section 10(23FE) itself, which will cut down procedures for it to get tax exemption.

Last week, *FE* reported that Saudi Aramco, the world's largest petroleum company, may pick up 20 per cent stakes each in the two new large refineries being planned by India's state-run ONGC and BPCL on the country's west and east coasts, respectively. It could invest around \$2.8 billion in debt and equity of both projects. However, Aramco is not an SWF and could not get tax exemptions under Section 10(23FE) for direct investment in the projects.

So, it could set up Infrastructure Investment Trusts (InvITs) with BPCL for the Andhra Pradesh refinery and with ONGC for the Gujarat refinery. PIF would invest in those InvITs and get the tax exemption on dividend income.

The High-Level Task Force recently came to an understanding in multiple areas, which will rapidly promote such investment flows. The progress made by this task force in taxation was also a major breakthrough for greater cooperation in the future. **FE**

Companies in the grip of rising input costs

Oil, gas, automobile and mining sectors experienced the severest impact

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Several Indian companies have been raising concerns about escalating input costs, the result of a volatility in global commodity prices triggered by intensifying geopolitical tensions and other uncertainties. Quarterly results for the January-March period show input cost pressures re-emerged as a pain point for India Inc. at the fiscal year's close.

Mint's analysis of 179 BSE-listed companies that have announced fourth-quarter results so far reveal a challenging trend: after a brief respite in the December quarter, raw material expenses as a share of net sales resumed their upward trajectory.

The analysis excludes the banking, financial services, and insurance (BFSI) companies, brokerages, and information technology (IT) services firms, which do not typically record raw material expenses.

Raw material expenses as a share of net sales climbed to 53.5% in the March quarter of 2024-25 from 51.9% in the preceding three months. While still below the 55-56% peaks witnessed during the first half of the fiscal year, this figure significantly exceeds the 51.1% recorded in the corresponding quarter of the preceding fiscal year.

On a year-on-year basis, raw material prices for this sample of companies surged by 5% in the March quarter while overall net sales remained stagnant.

The climb was equally evident when measuring raw material expenses in terms of total corporate expenditure. This share rose to 60.1% in the March quarter from 58.2% in the December quarter and 57.4% in the March quarter of the previous year—confirming a persistent upward trend in the input cost burden.

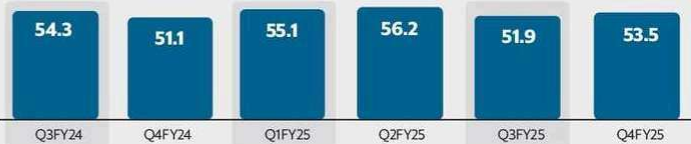
A sector-wise analysis shows that most

Cause for concern

A sector-wise analysis shows that most commodity-intensive industries bore the brunt of these cost pressures.

Input costs have re-emerged as a pain point for India Inc. in Q4.

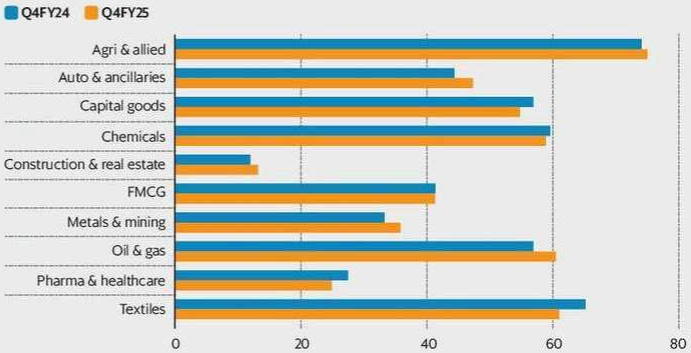
Raw material expenses as a share of net sales (in %)



Analysis based on 179 BSE-listed companies that have declared their latest quarterly financial results.

Input cost surge hits oil and gas, metals and mining, auto sectors hardest in Q4.

Raw material expenses as a share of net sales (in %)



The analysis excludes the banking, financial services, and insurance (BFSI) sector, as well as other sectors with fewer than ten companies reporting their latest financial results. Source: Capitaline, Mint calculations

GOPAKUMAR WARRIER/MINT



Q4 EARNINGS WATCH

commodity-intensive industries bore the brunt of these cost pressures.

Oil and gas, automobile and ancillaries, and metals and mining sectors experienced the severest impact, with raw material expenses in terms of net sales jumping by 250-360 basis points between the March quarters of the last two fiscal years, reflecting these sectors' vulnerability to global commodity price fluctuations.

The construction and real estate sector also faced significant headwinds, with input costs rising by over 100 basis points

year-on-year (y-o-y) in the fourth quarter.

Textiles, pharmaceuticals and healthcare companies and capital goods sectors likely benefited during the fourth quarter.

The fast-moving consumer goods (FMCG) sector, despite a 5% y-o-y surge in raw material prices, found some relief. Fourteen FMCG companies that have reported their fourth-quarter results managed to maintain a relatively stable ratio of raw material expenses to net sales, likely by passing on these costs to consumers.

This is the sixth part of a series of data stories on the ongoing Q4 earnings season.

Despite falling prices, Opec+ speeds up oil output hikes

STANLEY REED
London, 4 May

Oil prices are falling. Economists are cutting forecasts for global economic growth. Oil giants are reporting lower profits.

But on Saturday, eight countries that belong to the oil cartel known as Opec + said they would add about 411,000 barrels of oil a day in June. The move, which follows a similar step by the group to increase oil production at their April meeting, is a major shift in policy that will ripple through the wider energy industry, hitting profits of oil companies and forcing cutbacks.

The group said in a statement that the market was “healthy” and noted that oil inventories remained low.

Saudi Arabia, the de facto leader of Opec +, is signaling that it is reluctant to hold back millions of barrels a day of oil that it could produce, especially when other members of the group, like Kazakhstan and Iraq, are not

observing their agreed-upon production ceilings. “The view from Saudi Arabia, in particular, is that they no longer want to be the ones carrying the heaviest burden if other countries in the group are not showing sufficient commitment to doing their part,” said Richard Bronze, the head of geopolitics at Energy Aspects, a London research firm.

Demand for oil has not weakened significantly. Oil consumption increased by 1.2 million barrels a day in the first quarter of 2025, the most since 2023, according to the International Energy Agency in Paris. Analysts there and elsewhere, though, are cutting their



SAUDI FACTOR

- The Opec + leader is reluctant to hold back millions of barrels a day of oil that it could produce, especially when other members of the group are not observing their agreed-upon production ceilings
- Saudi Arabia and the UAE may also be more inclined to bolster the ambitions of President Trump
- The two nations may be hoping for some concessions in deals in defence or AI, where both countries have strong ambitions

forecasts for demand in anticipation of disruption from global trade tensions, which has already slammed prices. Prices of Brent crude, the international benchmark, have fallen close to 20 per cent since April 3, when the Saudis and other producers signaled they

would increase production.

Saudi Arabia and the United Arab Emirates (UAE), considered the main decision makers among oil producers these days, may also be more inclined to bolster the ambitions of President Trump, who is expected to visit Saudi Arabia and other Middle East countries soon, than they were in aiding his predecessor, Joe Biden. This price drop “represents one of the most important economic bright spots” for the Trump administration, Helima Croft, head of global commodities at RBC Capital Markets, an investment bank, wrote in a recent note to clients. Trump has promised to lower energy costs, including gas prices, for consumers.

Saudi Arabia and the UAE may be hoping for some concessions in deals in defence or artificial intelligence, where both countries have strong ambitions, analysts say. Already, the Trump administration is reviving talks on a nuclear partnership with Saudi Arabia.

Diesel consumption up 4% in April as summer fuels consumption

In April, diesel consumption rose to 8.23 million tonnes, up nearly 4 per cent over demand in the year ago period

OUR CORRESPONDENT

NEW DELHI: India's diesel consumption rebounded in April, recording a 4 per cent increase in demand after months of low or negative growth, driven by the start of summer season with warmer days and nights.

Diesel, India's most consumed petroleum fuel and lifeline of transport and rural agri economy, saw just 2 per cent growth in demand in fiscal year ended March 31, 2024 and no growth at all in the preceding financial year.

In April, diesel consumption rose to 8.23 million tonnes, up nearly 4 per cent over demand in the year ago period, according to latest data available from the Petroleum Planning and Analysis Cell of Ministry of Petroleum and Natural Gas.

The consumption was 5.3 per cent more than April 2023 and 10.45 per cent higher than the previous Covid-2019 period. Onset of summer triggers rural demand for irrigation as well as for air-conditioning in urban areas.

The 4 per cent rise in April 2025 is the highest recorded volume for this month and second highest ever volume in any month.

Industry officials said diesel had hit a slow lane in the last



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lations about its future.

The growth in April was on the back of rise in consumption for electioneering a year back.

While there has been a shift in passenger vehicles to petrol, CNG and electricity, diesel still makes up for around 38 per cent of all petroleum products consumed in the country.

It has grown at more than 10 per cent over pre-Covid volume and will continue to grow for the next many years, they said.

During April 2025, petrol consumption registered a growth of 4.6 per cent to 3.435 million tonnes. Petrol con-

Highlights

- » The diesel consumption was 5.3 per cent more than April 2023 and 10.45 per cent higher than the previous Covid-2019 period
- » 'It has grown at more than 10 per cent over pre-Covid volume and will continue to grow for the next many years'
- » During April 2025, petrol consumption registered a growth of 4.6 per cent to 3.435 million tonnes

by 19 per cent due to electioneering. It has added volume equal to four months since 2019.

LPG continued to be in the fast lane with 6.7 per cent growth to 2.621 million tonnes, driven by Ujjawala connections. Since 2019, volumes equal to almost 5 months have been added in domestic cooking gas consumption.

Aviation turbine fuel (ATF) consumption growth slowed to 3.25 per cent to 7,66,000 tonnes. Jet fuel was clocking a double-digit growth last year due to electioneering (last year ATF grew by 11.28 per cent in April 2024), according

India is top destination for 'grey fleet' oil shipments from Russia

ARUNIMA BHARADWAJ
New Delhi, May 4

INDIA HAS EMERGED as the top destination for grey fleet oil shipments, receiving nearly 64 million tonne (MT) or 9.5% of total global oil flows — via 'shadow' vessels from Russia in 2024, according to a report by global real-time data and analytics provider Kpler. This underscores the country's growing appetite for Russian crude.

At 9.5%, India has surpassed China in its reliance on Russian oil transported through the grey fleet, highlighting a strong demand for discounted barrels even as international sanctions on Russia remain in force.

In 2024, the vast majority of petroleum product shipments — both dirty and clean (DPP and CPP) — were carried by white-listed fleets, which handled over one billion tonne of cargo. However, grey fleets accounted for 109.2 MT, or about 10% of global flows, particularly in routes involving politically sensitive or sanctioned regions, Kpler reported.

STRONG DEMAND

- India has received **64 MT** of oil via 'shadow' vessels from Russia in 2024
- It is **9.5%** of total global oil flows
- India has surpassed China in its reliance on Russian oil transported through grey fleet
- Russia-China trade followed closely behind at **8.3%**



- Grey fleet accounts for 109.2 MT, or about **10%** of global flows
- Experts forecast that share of grey fleet in 2025 will rise to over **13%**
- Other heavily grey-fleet-dependent routes included Venezuela to China and Iran to the UAE
- Freight for ESPO shipped to China rose by over **300%**

In contrast, sanctioned fleets contributed minimally to the global oil trade, moving only 3.78 MT—or 0.3% of the total—illustrating the effectiveness of international sanctions in limiting their activity.

"The largest volume of grey fleet activity was observed between Russia and India, where 9.5% of total flows were conducted using these vessels with approximately 64 MT, reflecting India's growing demand for Russian energy," Kpler noted.

A 'grey fleet' refers to tankers that operate in legally ambiguous ways to circumvent sanctions, obscure cargo origins or destinations, or mask ownership. These vessels are especially prevalent in oil trades from sanctioned countries such as Russia, Iran, and Venezuela.

According to the report, Russia — China trade followed closely behind at 8.3%, reflecting China's ongoing efforts to diversify its energy sources. Other heavily grey-

fleet-dependent routes included Venezuela to China (11.9%) and Iran to the UAE (11.3%), signaling increased reliance on shadow fleets in geopolitically tense or sanctioned areas.

Tankers listed under US sanctions in January accounted for an estimated 25–30% of Russian crude and DPP export ton-miles in recent months. However, the impact on freight rates varied.

Over 60% of tankers that trans-

ported ESPO (Eastern Siberia–Pacific Ocean) crude in the previous year were sanctioned as of January 10, compared to just 19% of those carrying Urals crude, the report stated.

"Freight for ESPO shipped to China rose by over 300% to over \$8/bbl, whereas freight for Urals from the Black Sea to India rose a comparatively modest 130% to \$7/bbl. The jump in freight is proportional to the increase in demand for 'new' vessels to maintain exports," Kplersaid.

The report added that higher freight rates for ESPO underscore a greater need to replenish fleets in the East.

This is being addressed by redirecting vessels from the West, with some ships that had no prior history of trading with Russia now being absorbed into the grey fleet—tightening supply in the conventional freight market.

Kpler forecasts a significant expansion of the grey fleet in 2025, projecting its share of the global tanker market to rise from about 10% to over 13%.

Oil India in talks with global peers for joint exploration

State-run Maharatna company seeks partners for deep & ultra-deep sea acreages, future bids

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State-run Oil India Ltd (OIL) is in talks with global oil and gas exploration and production (E&P) companies to partner for exploration in deep and ultra-deep acreages won by it and also to jointly participate in upcoming bid rounds, its top official said.

Ranjit Rath, chairman and managing director of OIL, said in an interview that several government-owned national oil companies (NOCs) and private international oil companies (IOCs) have shown interest in jointly bidding for blocks in the upcoming 10th round of auction under Open Acreage Licensing Programme (OALP-X).

Further, he said that OIL is looking at expanding its international footprint to ensure energy security, and is also exploring a foray into critical mineral exploration overseas, through partnerships. It has already bagged a domestic vanadium and graphite block and is vying for more critical mineral mines.

In February, the Maharatna company had signed a memorandum of understanding (MoU) with Petrobras, Brazil's state-owned oil major, to collaborate in the exploration and production of hydrocarbon resources in India's offshore regions. Rath said deliberations with Petrobras are underway.

"We are extremely upbeat about our possible collaboration with Petrobras," said Rath, adding that the IEW (India Energy Week 2025), a platform created by the ministry of petroleum and natural gas this February, helped the company reach out to both national and international oil companies for collaborations. The MoU with Petrobras was also signed at the IEW.



In February, Oil India had signed an MoU with Brazil's state-owned oil major Petrobras.

REUTERS

"We have several engagements currently going on," Rath said. "With some of them, we have got NDAs (non-disclosure agreements) signed and we are having data exchanges."

Rath added that all other oil compa-

The talks for joint bidding with global players come at a time when another state-run E&P major—ONGC—has tied up with UK-headquartered bp plc and Reliance Industries. The three companies jointly bagged a block in the

OIL bagged nine blocks, adding 51,000 sq. km to its exploration portfolio. Three of the blocks—one each in Cambay basin, Mahanadi basin and Assam Shelf basin—were won in partnership with ONGC.

According to Rath, OIL is also looking at more international exploration and production blocks and would look at partnering with local players for such projects.

"We are in discussion with several IOCs and NOCs as part of our overseas investment and discussions are at various stages...these are all under NDA," he said. "In some cases, due diligence is also initiated. So, we are looking at both exploration and producing assets on a holistic basis."

For an extended version of the story, go to [livemint.com](https://www.livemint.com).

ENERGY SECURITY

ANOTHER E&P major, ONGC, tied up with UK-based bp plc and Reliance Industries

THE three companies jointly bagged a block in the Saurashtra Basin in OALP-IX

APART from bp and Petrobras, other global majors in the space are Petronas Shell and Chevron

UNDER the recently ended OALP-IX, OIL bagged nine blocks, adding 51,000 sq. km to its portfolio

nies contacted during IEW—international and national—are showing keen interest for participation with OIL not only in the OALP-IX blocks, "where we have already secured the blocks, but also possible joint-bidding in OALP-X".

Saurashtra Basin in OALP-IX. The blocks were awarded last month.

Apart from Petrobras and bp, other global majors in this space include Shell, Chevron, and ExxonMobil.

Under the recently ended OALP-IX,

OPEC+ TO SPEED UP OUTPUT HIKE OVER MEMBERS NOT COMPLYING

Reuters

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OPEC+ plans to accelerate oil output hikes and may unwind its 2.2 million barrels per day (bpd) of voluntary cuts by October's end if members do not improve compliance with their production quotas, four people aware of the matter said. OPEC+ shocked the oil market in April by agreeing a faster-than-expected unwinding of cuts despite weak prices and demand. The move was designed by OPEC+ leader Saudi Arabia to punish some members for poor quota compliance, the persons said.

OPEC+, which includes the Organization of the Petroleum Exporting Countries and allies such as Russia, agreed another big output hike for June on Saturday, taking the total it plans to release in April, May and June to nearly 1 million bpd. OPEC+ will maintain the trend and will likely agree in June to release another 411,000 bpd in July, the four people briefed on the matter said, speaking on condition of anonymity. OPEC, the Saudi government's communications office, and the office of Russian Deputy PM Alexander Novak did not immediately reply to a request for comment.

Shell considers taking over BP

Shell is working with advisers to evaluate a potential acquisition of BP, though it's waiting for further stock and oil price declines before deciding whether to pursue a bid, according to people familiar with the matter. A successful combination of Shell and BP would be one of the oil industry's largest-ever takeovers. REUTERS

Shell is studying merits of BP deal as rival's stock slumps

Bloomberg
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Shell Plc is working with advisers to evaluate a potential acquisition of BP Plc, though it's waiting for further stock and oil price declines before deciding whether to pursue a bid, according to people familiar with the matter.

The oil major has been more seriously discussing the feasibility and merits of a BP takeover with its advisers in recent weeks, the people said, asking not be identified because the information is private.

Any final decision will likely depend on whether BP stock continues to slide, the people said. Shares of BP have already lost nearly a third of their value in the last 12 months as a turnaround plan has fallen flat with investors and oil prices tumbled. Shell may also wait for BP to reach out or for another suitor to make a first move, and its current work could help it get prepared for such a scenario, some of the people said.

Deliberations are in the early stages and Shell may opt to focus on share buybacks and bolt-on acquisitions rather than a mega-merger, they said. Other large energy companies have also been analysing whether they would want to bid for BP, the people said.

"As we have said many times before, we are sharply focused on capturing the value in Shell through continuing to focus



Any final decision will likely depend on whether BP stock continues to slide. **REUTERS**

on performance, discipline and simplification," a spokesperson for Shell said in an emailed statement. A representative for BP declined to comment.

A successful combination of Shell and BP would be one of the oil industry's largest-ever takeovers, bringing together the iconic British majors in a deal that's been discussed on and off for decades. The companies were once close rivals—with a similar size, reach and global clout—but their paths have diverged in recent years.

Shell's stock is down about 13% in London trading over the last 12 months, giving the company a market value of £149 billion (\$197 billion). That's more than double the £56 billion market capitalization of BP.

BP has been battling prolonged underperformance stemming in large part from a net-zero strategy embraced by its former chief executive officer Bernard Looney.

अप्रैल में पेट्रोल-डीजल की मांग चार प्रतिशत बढ़ी

नई दिल्ली: गर्मियों की शुरुआत के साथ इस वर्ष अप्रैल में पेट्रोल और डीजल की मांग बढ़ी है और पिछले महीने इन दोनों प्रमुख ईंधन की मांग में करीब चार प्रतिशत की वृद्धि रही है। पेट्रोलियम प्लानिंग एंड एनालिसिस सेल के डाटा के अनुसार, पिछले महीने डीजल की खपत 82.3 लाख टन और पेट्रोल की खपत 34.35 लाख टन रही है। डाटा के अनुसार, यात्री वाहनों में होने वाली कुल ईंधन खपत में डीजल का हिस्सा करीब 38 प्रतिशत है। (प्रेट्र)

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एजेंसी ■ नई दिल्ली

देश में डीजल की मांग में अप्रैल में करीब चार प्रतिशत की वृद्धि हुई है। कई माह की नकारात्मक या कम वृद्धि के बाद अप्रैल में गर्मियों की शुरुआत के साथ डीजल की खपत बढ़ी है। डीजल देश में सबसे ज्यादा उपभोग किया जाने वाला ईंधन है। यह देश के परिवहन क्षेत्र और ग्रामीण कृषि अर्थव्यवस्था की जीवनरेखा है। 31 मार्च, 2024 को समाप्त वित्त वर्ष में डीजल की मांग में सिर्फ दो प्रतिशत की वृद्धि देखी गई थी और इससे पिछले वित्त वर्ष में डीजल की खपत में कोई वृद्धि नहीं हुई थी। पेट्रोलियम और प्राकृतिक गैस मंत्रालय के पेट्रोलियम योजना और विश्लेषण प्रकोष्ठ के ताजा आंकड़ों के अनुसार, अप्रैल में डीजल की खपत बढ़कर 82.3 लाख टन हो गई, जो एक साल पहले की समान अवधि से लगभग चार प्रतिशत अधिक है। अप्रैल, 2023 की तुलना में खपत 5.3 प्रतिशत और कोविड-पूर्व की अवधि यानी 2019 की तुलना में इसमें 10.45 प्रतिशत की वृद्धि हुई है। गर्मियों की शुरुआत से ग्रामीण क्षेत्रों



में सिंचाई के साथ-साथ शहरी क्षेत्रों में एयर-कंडीशनिंग की मांग बढ़ जाती है। अप्रैल, 2025 में डीजल की मांग में चार प्रतिशत की वृद्धि इस महीने के लिए दर्ज की गई सबसे उंची मात्रा और किसी भी महीने में अबतक की दूसरी सबसे अधिक मात्रा है। उद्योग के अधिकारियों ने कहा कि पिछले कुछ महीनों में डीजल की मांग में सुस्ती रही है, जिससे इसके भविष्य को लेकर अटकलें लगाई जा रही थी। यात्री वाहनों में अब पेट्रोल, सीएनजी और बिजली का इस्तेमाल बढ़ रहा है। इसके बावजूद देश में कुल पेट्रोलियम उत्पादों की खपत में डीजल का हिस्सा करीब 38 प्रतिशत है। अधिकारियों ने कहा कि डीजल की खपत में कोविड-पूर्व की अवधि की तुलना में 10 प्रतिशत से अधिक की वृद्धि

हुई है और अगले कुछ साल तक डीजल की मांग बढ़ती रहेगी। अप्रैल, 2025 में पेट्रोल की खपत 4.6 प्रतिशत बढ़कर 34.35 लाख टन हो गई। पिछले साल चुनाव प्रचार के कारण पेट्रोल की खपत में 19 प्रतिशत की वृद्धि हुई थी। उज्ज्वला कनेक्शन के काण एलपीजी की खपत 6.7 प्रतिशत की वृद्धि के साथ 26.21 लाख टन पर पहुंच गई। 2019 से घरेलू रसोई गैस की खपत में लगभग पांच महीने के बराबर की वृद्धि हुई है। विमान ईंधन एविएशन टर्बाइन फ्यूल (एटीएफ) की खपत में वृद्धि घटकर 3.25 प्रतिशत रह गई है। अप्रैल में एटीएफ की कुल मांग 7,66,000 टन रही। पिछले साल चुनाव प्रचार के कारण जेट ईंधन की मांग में दो अंक में वृद्धि देखने को मिली थी।

पेट्रोल और डीजल की मांग में वृद्धि

नई दिल्ली (भाषा)। देश में डीजल की मांग में अप्रैल में करीब चार प्रतिशत की वृद्धि हुई है। कई माह की नकारात्मक या कम वृद्धि के बाद अप्रैल में गर्मियों की शुरुआत के साथ डीजल की खपत बढ़ी है। डीजल देश में सबसे ज्यादा उपभोग किया जाने वाला ईंधन है। यह देश के परिवहन क्षेत्र और ग्रामीण कृषि अर्थव्यवस्था की 'जीवनरेखा' है। 31 मार्च, 2024 को समाप्त वित्त वर्ष में डीजल की मांग में सिर्फ दो प्रतिशत की वृद्धि देखी गई थी और इससे पिछले वित्त वर्ष में डीजल खपत में कोई वृद्धि नहीं थी।

पेट्रोलियम और प्राकृतिक गैस मंत्रालय के पेट्रोलियम योजना और विश्लेषण प्रकोष्ठ के ताजा आंकड़ों के अनुसार, अप्रैल में डीजल की खपत बढ़कर 82.3 लाख टन हो गई, जो एक साल पहले की समान अवधि से लगभग चार प्रतिशत अधिक है। अप्रैल, 2023 की तुलना में खपत 5.3 प्रतिशत और कोविड-पूर्व की अवधि यानी 2019 की तुलना में इसमें 10.45 प्रतिशत की वृद्धि हुई है। अप्रैल, 2025 में पेट्रोल की खपत 4.6 प्रतिशत बढ़कर 34.35 लाख टन हो गई। पिछले साल चुनाव प्रचार के कारण पेट्रोल की खपत में 19 प्रतिशत की वृद्धि हुई थी।

उज्ज्वला कनेक्शन के काण एलपीजी की खपत 6.7 प्रतिशत की वृद्धि के साथ 26.21 लाख टन पर पहुंच गई। 2019 से घरेलू रसोई गैस की खपत में लगभग पांच महीने के बराबर की वृद्धि हुई है। विमान ईंधन एविएशन टर्बाइन फ्यूल (एटीएफ) की खपत में वृद्धि घटकर 3.25 प्रतिशत रह गई है।

खोज

शैवाल से हरित ईंधन बनाने के लिए जैव-रिफाइनरी विकसित

नई दिल्ली, (भाषा)। भारतीय औद्योगिकी संस्थान (आईआईटी), गुवाहाटी के अनुसंधानकर्ताओं ने अभिनव सूक्ष्म शैवाल जैव-रिफाइनरी मॉडल विकसित किए हैं, जो अपशिष्ट जल को स्वच्छ ऊर्जा में बदल सकते हैं। अधिकारियों ने यह जानकारी दी।

यह नवोन्मेषी परियोजना बड़े पैमाने पर रेएक्टर प्रणालियों, उन्नत टिकाऊ ताप-रासायनिक रूपांतरण प्रक्रियाओं और हरित रासायन विज्ञान को जोड़ती है, जिससे घरेलू और औद्योगिक अपशिष्ट जल का उपचार करते हुए जैव ईंधन का उत्पादन किया जा सकता है। शोध टीम ने 10 से अधिक सूक्ष्म शैवाल प्रजातियों की पहचान की और

उनका आनुवंशिक अनुक्रमण किया, जिससे अपशिष्ट जल से 85 प्रतिशत तक प्रदूषक हटाए जा सकते हैं। रासायनिक इंजीनियरिंग विभाग के प्रोफेसर कौस्तुभ मोहंती ने पीटीआई-भाषा को बताया, प्रक्रिया को कुशल और लागत प्रभावी बनाने के लिए हमने बड़े पैमाने पर फोटोबायोरिएक्टर बनाए हैं, जो शैवाल की वृद्धि को अधिकतम करते हैं। टीम ने अपशिष्ट से ऊर्जा बनाने वाली एक प्रणाली भी तैयार की है, जो जैव-कच्चा तेल के रूप में है, जो पेट्रोलियम जैसा ईंधन है। इसका उत्पादन करने के लिए एकत्रित शैवाल और सीवेज कीचड़ दोनों का उपयोग किया जाता है। उन्होंने कहा, यह एक अवधारणा

► 10 से अधिक सूक्ष्म शैवाल प्रजातियों की पहचान से अपशिष्ट जल से 85 प्रतिशत तक प्रदूषक हटाए जा सकते हैं

को सिद्ध करने का कार्य है, जहां हमने प्रदर्शित किया है कि कैसे सूक्ष्म शैवाल अपशिष्ट जल को उपचारित कर सकते हैं और साथ ही जैव-रिफाइनरी और सर्कुलर बायो-इकोनॉमी दृष्टिकोण के तहत जैव ईंधन का उत्पादन कर सकते हैं। हमने विभिन्न प्रक्रियाएं भी विकसित की हैं, जहां जैव-रिफाइनरी के तहत उत्पन्न होने वाले सभी ठोस और तरल अपशिष्टों को पुनः

चक्रित किया जाता है, पुनः उपयोग किया जाता है और जैव ईंधन में परिवर्तित किया जाता है। अब, हम इस कार्य को आगे बढ़ाने की योजना बना रहे हैं। आईआईटी, गुवाहाटी के पीएचडी शोध छात्र और अब एसएसएस-एनआईबीई, कपूरथला में वैज्ञानिक संजीव मिश्रा ने बताया कि शहरीकरण के कारण घरेलू सीवेज में काफी मात्रा में विभिन्न कार्बनिक और अकार्बनिक प्रदूषक शामिल हो गए हैं। उन्होंने कहा, इसलिए, एक ऐसी प्रक्रिया विकसित करना आवश्यक है, जो ऊर्जा सुरक्षा के बढ़ते मुद्दों को सरल और कुशल तरीके से अपशिष्ट जल उपचार के साथ हल कर सके। इस संदर्भ में, सूक्ष्म शैवाल

अपशिष्ट जल उपचार एक स्वच्छ, हरित और टिकाऊ प्रक्रिया है, जिसे शैवाल जैव-रिफाइनरी दृष्टिकोण के तहत जैव ईंधन उत्पादन के साथ एकीकृत किया जा सकता है। एनर्जी कन्वर्जन एंड मैनेजमेंट पत्रिका में प्रकाशित शोध के मुताबिक, इस प्रक्रिया से उल्लेखनीय रूप से 40 प्रतिशत बायोक्रूड प्राप्त हुआ, जिसमें पेट्रोल, केरोसीन, डीजल और औद्योगिक ईंधन शामिल थे। मिश्रा ने बताया, टीम ने एक कदम आगे बढ़कर इस प्रक्रिया से बचे हुए ठोस और तरल पदार्थों का पुनः उपयोग करने के तरीके खोजे, तथा उन्हें बायोडीजल और हाइड्रोकार्बन जैसे मूल्यवान उपोत्पादों में बदल दिया।

शैवाल से हरित ईंधन बनाने के लिए जैव-रिफाइनरी विकसित

नई दिल्ली (भाषा)। भारतीय प्रौद्योगिकी संस्थान (आईआईटी), गुवाहाटी के अनुसंधानकर्ताओं ने अभिनव सूक्ष्म शैवाल जैव-रिफाइनरी मॉडल विकसित किए हैं, जो अपशिष्ट जल को स्वच्छ ऊर्जा में बदल सकते हैं। यह नवोन्मेषी परियोजना बड़े पैमाने पर रिएक्टर प्रणालियों, उन्नत टिकाऊ ताप-रासायनिक रूपांतरण प्रक्रियाओं और हरित रसायन विज्ञान को जोड़ती है, जिससे घरेलू और औद्योगिक अपशिष्ट जल का उपचार करते हुए जैव ईंधन का उत्पादन किया जा सकता है।

शोध टीम ने 10 से अधिक सूक्ष्म शैवाल प्रजातियों की पहचान की और उनका आनुवंशिक अनुक्रमण किया, जिससे अपशिष्ट जल से 85 प्रतिशत तक प्रदूषक हटाए जा सकते हैं। रासायनिक इंजीनियरिंग विभाग के प्रोफेसर कौस्तुभ मोहंती ने बताया, “प्रक्रिया को कुशल और लागत प्रभावी बनाने के लिए हमने बड़े पैमाने पर फोटोबायोरिएक्टर बनाए हैं, जो शैवाल की वृद्धि को अधिकतम करते हैं। टीम ने अपशिष्ट से ऊर्जा बनाने वाली एक प्रणाली भी तैयार की है, जो जैव-कच्चा तेल के रूप में है, जो पेट्रोलियम जैसा ईंधन है। इसका

उत्पादन करने के लिए एकत्रित शैवाल और सीवेज कीचड़ दोनों का उपयोग किया जाता है। उन्होंने कहा, “यह एक अवधारणा को सिद्ध करने का कार्य है, जहां हमने प्रदर्शित किया है कि कैसे सूक्ष्म शैवाल अपशिष्ट जल को उपचारित कर सकते हैं और साथ ही जैव-रिफाइनरी और ‘सर्कुलर बायो-इकोनॉमी’ दृष्टिकोण के तहत जैव ईंधन का उत्पादन कर सकते हैं। हमने विभिन्न प्रक्रियाएं भी विकसित

घरेलू और औद्योगिक अपशिष्ट को जैव ईंधन में बदला जा सकेगा

की है, जहां जैव-रिफाइनरी के तहत उत्पन्न होने वाले सभी ठोस और तरल अपशिष्टों को पुनः चक्रित किया जाता है, पुनः उपयोग किया जाता है और जैव ईंधन में परिवर्तित किया जाता है। अब, हम इस कार्य को आगे बढ़ाने की योजना बना रहे हैं। आईआईटी, गुवाहाटी के पीएचडी शोध छात्र और अब एसएसएस-एनआईबीई, कपूरथला में वैज्ञानिक संजीव मिश्रा ने बताया कि शहरीकरण के कारण घरेलू सीवेज में काफी मात्रा में विभिन्न कार्बनिक और अकार्बनिक प्रदूषक शामिल

हो गए हैं। उन्होंने कहा, इसलिए, एक ऐसी प्रक्रिया विकसित करना आवश्यक है, जो ऊर्जा सुरक्षा के बढ़ते मुद्दों को सरल और कुशल तरीके से अपशिष्ट जल उपचार के साथ हल कर सके। इस संदर्भ में, सूक्ष्म शैवाल अपशिष्ट जल उपचार एक स्वच्छ, हरित और टिकाऊ प्रक्रिया है, जिसे शैवाल जैव-रिफाइनरी दृष्टिकोण के तहत जैव ईंधन उत्पादन के साथ एकीकृत किया जा सकता है। एनर्जी कन्वर्जन एंड मैनेजमेंट” पत्रिका में प्रकाशित शोध के मुताबिक, इस प्रक्रिया से उल्लेखनीय रूप से 40 प्रतिशत ‘बायोक्रूड’ प्राप्त हुआ, जिसमें पेट्रोल, केरोसीन, डीजल और औद्योगिक ईंधन शामिल थे। मिश्रा ने बताया, “टीम ने एक कदम आगे बढ़कर इस प्रक्रिया से बचे हुए ठोस और तरल पदार्थों का पुनः उपयोग करने के तरीके खोजे, तथा उन्हें बायोडीजल और हाइड्रोकार जैसे मूल्यवान उपोत्पादों में बदल दिया। सैद्धांतिक द्रव्यमान संतुलन के आधार पर तथा 10 लाख लीटर घरेलू मलजल का उपयोग करके, 2400 किलोग्राम से अधिक शैवाल बायोमास (622 किलोग्राम कीचड़ के साथ), 99 किलोग्राम पेट्रोल, 266 किलोग्राम डीजल और 234 किलोग्राम केरोसिन के अलावा अन्य चीजें प्राप्त की जा सकती हैं।