



ONGC News as on 13 December 2024 (Print & Online)

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ONGC Oil Output Bucks the Trend After 8 Years of Decline

Sanjeev Choudhary

New Delhi: ONGC's production trend is beginning to turn after eight straight years of fall as a key new field in KG Basin ramps up and the old Mumbai High asset arrests decline.

ONGC's crude production rose 3% year-on-year in November to 53,804 tonnes per day (tpd) and the output growth so far in December has accelerated to 4.2% to 54,535 tpd, according to people with knowledge of the matter.

The output was marginally higher in three of the first seven months this fiscal year but there is a clear break-out in trend in December, they said, adding that production growth is expected to quicken in the January-March quarter. If the current production trend continues, ONGC may post the first annual production growth in 2024-25 after eight years, they said.

In recent years, ONGC has often drawn flak for sagging output and limited discoveries. The company's annual oil production has fallen about

14% between 2015-16 and 2023-24. Output from ageing fields, which dominate ONGC's fleet, naturally declines after a few years in operation. "If you factor in an average natural production decline rate of 3-4% for an oilfield, the effective production rise for ONGC could be about 7-8% in December," one of the persons cited earlier said.

The chief contribution has come from production acceleration at KG-DWN-98/2 block in the Krishna Godavari basin off the eastern coast. The block, which began production at the

beginning of the year at a rate of 10,000 bpd, is producing 25,000 bpd currently and is on track to touch 38-40,000 bpd by month-end, people cited above said. The full impact of the December ramp-up will reflect in January volumes.

A big morale booster for ONGC has come from the arrest in production decline in the western offshore Mumbai High asset, which includes the flagship Mumbai High field as well as Bassein and satellite, Heera and Neelam fields.

The strength of new wells, impro-

ved surface facility upkeep and better reservoir management have all contributed to the arrest in production decline in Mumbai High asset, they said. The company has deployed enhanced oil recovery techniques such as water injections, and judiciously selected development wells, helping output, they said.

ONGC produces two-thirds of India's oil and about half of natural gas. Output expansion at ONGC is crucial to India's ambition of reducing oil import dependence.

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PSUs spur impact across sectors through CSR activities

Public Sector Undertakings accounted for 26.23 per cent of the total CSR spending in FY 21-22, a recent CSR spending report revealed

PUBLIC sector undertakings (PSUs) are putting their might behind changing the world, creating the building blocks of development through rigorous corporate social responsibility (CSR) practices. While CSR is usually associated with corporate India, the above size of public sector companies position them to make a much larger impact. PSUs are creating impact majorly across education and healthcare, with a propelling thrust towards sustainable development and catering to the socio-economic needs of rural and tribal sections of society.

In fact, PSUs accounted for a whopping 26.23 per cent of the total CSR spent in FY 21-22, according to a recent CSR spending report. Public sector oil companies alone have been spending around 10 per cent of the total expenditure in India for the past three to four years. As per the Public Enterprises Survey, CSR expenditure of PSUs during the last three financial years stood at Rs 4,488 crore in 2020-21, Rs 5,088 crore in 2019-20 and Rs 3,873 crore in 2018-19. Reports by KPMG and CAIG from 2021 revealed that PSUs have consistently focussed on furthering the cause of health and education through a major chunk of their CSR funds.

CSR activities are usually undertaken in regions where the PSUs or companies largely operate. Often, the allocated budgets also prioritise the focus areas of the Central government, such as a commitment to a non-discriminative free society under the Swachh Bharat Abhiyan, the Clean Ganga initiative, rural electrification, creating access to affordable healthcare, etc.

OIL PSUs SET AN ADMIRABLE TREND



Meanwhile, public sector oil companies have shown a robust commitment to their CSR spends over the years. In the past three years (2018-19 to 2020-21), they invested a total of Rs 3,582.24 crore under CSR in various regions of the nation, according to Rameshwar Reddy, Minister of State in the Ministry of Petroleum and Natural Gas. During the same period, the country spent a total of Rs 33,667 crore on CSR. As a result, for this timeframe, the oil PSUs' average CSR spending stayed at roughly 10 per cent.

According to Teli, oil and gas PSUs spent a total of Rs 1,377 crore on CSR in 2021-22, with ONGC being the biggest spender. The largest CSR expenditure among oil and gas PSUs for 2021-22 was made by ONGC, which spent Rs 430.07 crore. Following BPCL and OIL, who each spent Rs 166.73 crore and Rs 163.73 crore, Indian Oil came in second with Rs 204.77 crore.

These oil PSUs include HPCL, IOCL, ONGC, GAIL, BPCL, OIL, BIL, BL, NRI, MPPL and CPCL. The top 45 PSUs contribute around 17 per cent of total CSR expenditure in India. Teli added that Public Sector Oil Companies have been earmarking 2 per cent of their average net profits made during the three immediate preceding financial years as per Section 135 of the Companies Act. The CSR activities are undertaken under the broad identification Schedule VII of the Companies Act 2013.

GOING BEYOND THE CALL OF DUTY

While many PSUs have been committed to nation-building through CSR activities, some have even gone beyond the call of duty to exceed their CSR budgets. GAIL spent Rs 136.46 crore on CSR, compared to HPCL's Rs 161.86 crore. NRI spent its \$10.6 crore on CSR, whereas OIL spent Rs 18.0 crore. Coal India Ltd, a major player in the public sector, spent more money on CSR than was re-

quired for the fiscal year 2022-2023 (FY 2022-2023). The firm spent Rs 51.2 crore on CSR projects for the current fiscal year, 15.3 per cent more than the mandated minimum of Rs 445 crore. It informed through a statement. OIL has spent a total of Rs 226 crore on CSR during the last four years (until the end of 2022-23). This indicates that the corporation has spent 29 per cent more than the Rs 1,735 crore mandated amount.

PSUs, such as HPCL, ONGC, Indian Oil and BHEL, among others, have also supported states through public awareness programmes, such as educating communities on the use of restaurants and demolishing the long-held belief that cooking as well as excretion cannot take place within the common boundaries of their homes. They also run mobile health check-up facilities, providing free consultations and medication. On a larger scale, they have contributed towards affordable healthcare by building multi-specialty hospitals in areas where medical access was a challenge.

PSUs cast a wide net when it comes to directing their CSR efforts, including issues such as women entrepreneurship, sustainable energy, etc, which cater to the disadvantaged sections. ONGC, for instance, was responsible for distributing wheelchairs, crutches, Braille kits, hearing aids and artificial limbs to over 20,000 PwDs (persons with disabilities) across 21 states in collaboration with ALIMCO (Artificial Limbs Manufacturing Corporation). NTPC, meanwhile, joined hands with the Entrepreneurship Development Institute of India to empower underprivileged women through entrepreneurship, providing necessary training and support.



FOCUS ON INNOVATION

CSR is also powering innovation by providing financial assistance to the startup ecosystem, through a collaboration of IIT Kanpur's Startup Incubation and Innovation Centre (SIIC) and Advanced Weapons and Equipment India Limited (AWELI).

REC Limited acts as a nodal agency of the government for several flagship electrification programmes like Deen Dayal Upadhyaya Gram Nyay Yojana (DDU-GY) & Pradhan Mantri Sahaj Bijli Har Ghar Yojana (Saubhagya), which aim to electrify every household in the country. The company has numerous other community programmes focusing on education, skill development, health, sanitation, access to safe drinking water, rural and urban infrastructure development and women empowerment, reaching a wide spectrum of beneficiaries.

Recently, the Power Grid Corporation of India Limited (Power Grid), a Maharatna PSU under the Ministry of Power, received the Green Organization's Global Gold Award for improving agricultural productivity and rural livelihood in 10 villages of Odisha.

PSU companies have often come under fire for underperforming on corporate social responsibility. However, the work that these PSUs are doing to invest in CSR for health is admirable.

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- SECTOR-WISE CSR CONTRIBUTION BY PSUs**
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ITDC Advances Sustainable Tourism with a Strong Focus on CSR Initiatives

THE INDIA Tourism Development Corporation (ITDC) is making significant steps in sustainable tourism by prioritising its Corporate Social Responsibility (CSR) initiatives that emphasise community welfare and environmental sustainability. Through its various programs, ITDC is committed to fostering a positive impact on society and the environment.

A primary focus of ITDC's CSR efforts is enhancing community health. Recently, the organization donated a fully-equipped ambulance to Nongpoh Civil Hospital in Meghalaya's Ri Bhoi District, greatly improving medical access for residents in remote areas by ensuring timely healthcare. Besides the community health, ITDC has shown support to the armed forces by providing funding assistance for National Flag day. During the COVID-19 pandemic, the organization also demonstrated its commitment to social responsibility by supplying meal packs to frontline workers, reflecting its dedication to national service and community welfare.

ITDC's commitment to service is also demonstrated through its subsidiary, Ashok Travels & Tours (ATT), recently recognized for excellence in travel & tour management. ATT has partnered with the Central Armed Police Forces (CAPF) to provide first aid courses for personnel and their families during official leaves, underscoring ITDC's dedication to supporting those who serve the nation.

In addition to its CSR efforts, ITDC underscores its commitment to luxury hospitality by offering unique grandeur venues at the Ashok Hotel, New Delhi, along with customizable wedding packages to suit diverse preferences. ITDC also addresses the rising demand for MICE

(Meetings, Incentives, Conferences, and Exhibitions) tourism with state-of-the-art facilities and comprehensive event services. Led by Ashok Events, ITDC ensures every event is managed seamlessly, blending elegance with functionality to provide tourism industry.

Through these impactful CSR initiatives, ITDC is not only advancing sustainable tourism but also reinforcing its commitment to making a meaningful difference in the lives of communities, ultimately fostering a more responsible and ethical tourism industry.



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'Equity oil, rather than exploration, at core of overseas strategy now'

With crude oil prices near the lower range, state-run ONGC is looking at cost optimisation and profit maximisation. It is targeting 40 million tonne of oil equivalent (mtoe) of indigenous oil and gas output in the medium term, with production expected to start in a clutch of new fields. **Sushma Rawat, director (exploration), tells Arunima Bharadwaj. Excerpts:**

What are the company's plans regarding growth in its exploration & production of oil and gas?
After a slowdown during Covid, we have started refocusing on acreage acquisition as well as trying to increase exploratory drilling and data acquisition. Just last year, we acquired over 32,000 SKM new acreages, taking the total to around 1.80,000 SKM. In terms of data acquisition, we are conducting non-seismic as well as seismic surveys. Coming offshore, we have both shallow water as well as

deepwater and ultra-deepwater blocks coming up. In the last two years, we had several workshops, joint technical studies on potential exploration areas with firms such as Exxonmobil, Chevron, Total Energies, etc. Coming to the drilling aspect, we have 113 of our own rigs and last year we did over 100 wells in exploration. For this fiscal, we are targeting to reverse the production drop and achieve over 40 mtoe of indigenous production and drilling around 550 wells.

How do you plan to reverse the output decline from mature fields?
The decline in gas production is only momentary. We have a number of discoveries underway and are also trying to bring in technology improvement. We are working on partnership for the development of modular solutions such as small LNG

plants/mobile LNG or CNG plants, etc, for stranded discoveries.

What is the update on the production from KG basin? Have you been able to source technical partners for the Deen Dayal field yet?

It is going as per plans and production is going to rise and by December end, we will see some real changes. We have just connected 6 of the 20 wells. Once the wells start getting connected, the production definitely is going to go as per the predicted numbers. We want to go a little bit deeper and grow further. Deen Dayal field is a totally different ball game. One, it is a tight reservoir, and the other, what we call the HPIHT (high pressure high temperature) zone. In that, cutting-edge tech is required, otherwise it will not give good returns, and also the volume we get out may not be very high. So, we



are scouting for technological partners in the field.

When are the new blocks expected to start production? What's the update on their drilling operations?
We are doing something in the Tapli Daman area, new blocks are coming up. And also, we are looking for a consortium for Kutch field discoveries. In Mahanadi basin, if we can ready the field development plan this year and submit it with the directorate general of hydrocarbons, subsequent to their add government approval, we can start operations in a year or two.

How do you plan to increase overseas E&P operations via ONGC Videsh?
Right now, OVL is a little bit slow in exploration overseas and is focusing more on asset acquisition. We do have 3-4 countries, like Colombia, Sudan, Iraq and even

WE ARE LOOKING INTO COST OPTIMISATION, MAXIMISING PROFITS, AND IMPROVING PROJECT TIMELINES

Vietnam, where we are focusing. The focus is more on equity oil or production sharing for acreages which have already been discovered.

Do you plan to enter into mining of offshore minerals?
Right now, we have not really thought of getting into seabed mining. But given our expertise on the drilling side, that may come in helpful. Especially if it is a government venture, it can be looked into.

Are you looking for tie-ups for exploration of hydrocarbon blocks?

How do you think the amendment in the Oilfields Regulation and Development Act will aid business?
It will bring in easier clearances in terms of approvals for data acquisition as well as project development. The majors are still interested. With the next round (O&P) we are trying to bring in as many players as possible. We are open to any partners who can bring in some value addition.

How are the current crude realisations? With oil prices trading at \$70-74/barrel and the scrapping of windfall tax, how do you see financial growth?
The more we produce, the more comfortable we are. For us, crude prices at \$75/bbl is the upper limit. Yes, we are still comfortable but we are also looking into cost optimisation, maximising profits, and improving project timelines. With gas prices being good, a lot of projects are coming up in gas.

OU conducts seminar on critical minerals

HANS NEWS SERVICE
HYDERABAD

THE two-day seminar on 'Geo-Exploration for Critical Minerals and Precious Metals' commenced at Osmania University (OU) with insightful talks on geophysical exploration and its substantial impact on the economy.

The Association of Exploration Geophysicists (AEG), in collaboration with the department of geophysics, Osmania University College of Science, organised the seminar. The event also featured an exhibition, showcasing innovative technolo-

gies, cutting-edge research, and industry applications, demonstrating the diversity and advancements in geophysics.

Department of Earth Sciences former secretary Professor Harsh K Gupta emphasised the significance of geophysical exploration and its substantial impact on the global economy. During the event, the key speakers pointed out the importance of government organisations such as ONGC, GSI, NGRI, AMD, and other Central government earth science institutions in global critical mineral and precious metals research and exploration.

Rosneft inks record oil supply deal with RIL

To supply up to 500K bpd; transaction estimated at \$13 bn per year

SUBHAYAN CHAKRABORTY
& DEV CHATTERJEE

New Delhi/Mumbai, 12 December

Russia's state-owned oil firm Rosneft has agreed to supply up to 500,000 barrels per day (bpd) of crude oil to Indian upstream oil and gas major Reliance Industries (RIL) in the largest-ever energy deal between the two countries, *Reuters* reported on Thursday.

The 10-year agreement amounts to 0.5 per cent of global oil supply and is valued at roughly \$13 billion per year at current prices, it said. The deal will ensure stability in



INDIA'S CRUDE CONNECTION

Crude imports from Russia	Amount (\$ bn)	Share in global imports (%)
2019-20	1.75	1.71
2020-21	0.94	1.59
2021-22	2.25	2.10
2022-23	31.02	19.22
2023-24	46.48	33.38
2024-25 (Apr-Sep)	28.97	38.30

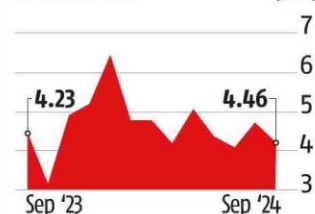
Source: Commerce Department

crude oil flows and is part of Rosneft's efforts to expand its presence in India, officials from the Ministry of Petroleum and Natural Gas said.

Without confirming the size of the agreement, ministry officials said the government was aware of

STRONG GROUND

Monthly crude oil imports from Russia (\$bn)



Note: Latest data available till Sep 2024
Source: Commerce Department

negotiations nearing a final stage between the two companies.

"Commercial contracts are confidential and based on market conditions. The government is not involved. However, such a deal will ensure greater stability in supplies," said an official.

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RIL-Rosneft deal to ensure stable crude flow: Officials

The government official said: "Even when prices remain on a long-term downward trajectory, securing stable flows is of paramount importance," said an official. Government sources said a deal of this size could give Rosneft more confidence in retaining its global business ties at a time when the US is reportedly planning to escalate sanctions on Russian firms, particularly its oil sector.

"The incumbent US President seeks to enact a tighter framework of sanctions on Russian entities before he leaves office next month. A mega pact with Indian firms would help Moscow send a message at this juncture," a highly placed source said, under the condition of anonymity. The agreement will also expand RIL's exposure to Russian crude oil.

Queries sent to the ministry did not elicit a response until the time of publication.

A RIL spokesperson told *Business Standard*: "We don't comment on specific

details of any supply contract that are confidential in nature. As always, any such supplies are compliant with prevailing sanctions policies as applicable to Indian buyers of such feedstock."

Rosneft did not reply to requests by *Reuters* for comments.

Rosneft's India plans

The second-largest Russian company by market capitalisation and one of its highest earners, Rosneft is increasingly making efforts to bolster its presence in. In early December, Russian President Vladimir Putin highlighted Rosneft's \$20 billion investment in India, without elaborating further. Energy cooperation is expected to take priority during Putin's upcoming visit to India, sometime in early next year, the Kremlin has said. In 2023, Rosneft expressed interest in building a greenfield refinery in India via a JV with public-sector refiners. Rosneft last year appointed Govind Kottieth Shah to its board — the first such appointment

from India.

An industry veteran, Shah had been the chairman of several IOCL JVs, including IndianOil-Adani Gas and IndianOil Total, before joining Rosneft.

Currently, Rosneft-backed Nayara Energy operates more than 6,000 retail fuel outlets in India, with an additional 1,200 in various stages of commissioning. The company also runs India's second-largest refinery, located in Gujarat's Vadinar, with an annual capacity of 20 million tonnes.

Responding to queries about Russian oil supplies, the RIL spokesperson said: "Russia is currently the largest supplier of crude oil to India. This is well-documented. We are always engaged with several international suppliers, including Russia, to source feedstock for our refinery. As per practice, such supply contracts are done for the following year. The number of cargoes will vary depending on market conditions and economics."

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Four entities get LoAs to avail of coal gasification incentives

The government on Thursday gave letters of award (LoAs) to four entities, including Bharat Coal Gasification and Chemicals Limited (BCGCL) – a joint venture of Coal India Limited–Bharat Heavy electronics Limited – for availing fiscal incentives totalling ₹4,150 crore for setting up coal gasification projects. LoAs have been given to CIL–BHEL , a consortium of CIL–GAIL , Coal India Ltd and New Era Cleantech Solution Pvt Ltd. “Ministry of Coal has reached a significant milestone in India’s Coal Gasification Initiative with the issuance of LoAs to the selected applicants under Categories I and III of the ₹8,500 crore Coal Gasification Incentive Scheme,” the coal ministry said in a statement.

PTI

Rosneft, Reliance ink India-Russia's biggest oil supply deal



RUSSIA'S Rosneft has agreed to supply nearly 500,000 barrels per day of crude to Reliance in the biggest ever energy deal between the two countries, reports **Reuters**. ■ **PAGE 4**

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BIGGEST-EVER INDIA-RUSSIA ENERGY PACT

RIL, Rosneft ink mega \$13-bn oil supply deal

● Russian oil major to supply 500K barrels of crude a day

NIDHI VERMA
New Delhi/Moscow, Dec 12

RUSSIA'S STATE OIL firm Rosneft has agreed to supply nearly 500,000 barrels per day (bpd) of crude to Reliance Industries in the biggest-ever energy deal between the two countries, three sources familiar with the deal said.

The 10-year agreement amounts to 0.5% of global supply and is worth roughly \$13 billion a year at Thursday's prices. It would further cement energy relations between India and Russia, which is under heavy Western sanctions over its invasion of Ukraine.

Rosneft did not reply to requests for comments.

Reliance said it works with international suppliers, including from Russia, and deals are based on market conditions. The company declined further comment on commercial matters, citing the confidentiality of supply agreements.

The deal comes ahead of the planned visit by Russian President Vladimir Putin to India and after US President-elect Donald Trump said he wants to push Moscow and Kyiv to stop the war as soon as he takes office in January.

Russian oil accounts for more than a third of India's energy imports. India became the largest importer of Russian crude after the

BIG BOOST



■ The 10-year pact amounts to **0.5%** of global supply, is worth roughly **\$13 billion** a year

■ Agreement to further cement energy relations between **India and Russia**

■ Reliance said it **works with international suppliers, including from Russia**, and deals based on market conditions

■ Pact comes ahead of a planned visit by **Russian President Vladimir Putin to India**

■ Sanctions by the Western have made **Russian oil cheaper than rival grades by \$3-\$4/barrel**

European Union, previously the top buyer, imposed sanctions on Russian oil imports in response to the 2022 invasion of Ukraine.

India has no sanctions on Russian oil, so refiners there have cashed in on the cheaper crude supply. Sanctions have made Russian oil cheaper than rival grades by at least \$3-\$4/barrel.

India's rising Russian imports have come at the expense of rival West Asian producers. The Reliance-Rosneft deal would represent another challenge for competitors, including Saudi Arabia. Competition among oil producers for a share of the Indian market is hot because it is one of the fastest-growing energy markets, and is becoming more important as a driver of global demand as growth in top importer China slows.

Under the deal, Rosneft would deliver 20-21 Aframax-sized cargoes (80,000 to 100,000 metric tonne) of various Russian crude grades and three cargoes of about 100,000 tonne each of fuel oil each month, the three sources said. The shipments will be supplied for Reliance's refining complex, the world's biggest, at Jamnagar in Gujarat.

Two sources said Reliance and Rosneft will review pricing and volumes every year under the deal to factor in oil markets dynamics.

In 2024, Reliance had a deal with Rosneft to purchase 3 million barrels of crude a month. Rosneft has been also selling crude to Reliance via intermediaries on a regular basis.

The new deal accounts for roughly a half of Rosneft's seaborne oil exports from Russian ports, which leaves not much supply available for other traders and middlemen, one source said. From January to October, RIL imported an average 405,000 barrels per day of Russian oil, up from 388,500 bpd in the same period last year, according to tanker data obtained from sources.

—REUTERS

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UAE names former BP CEO Looney to new investment unit board

THE UNITED ARAB Emirates named Bernard Looney, who resigned as chief executive officer of BP after misleading its board, as a director of the country's new energy investment company. Abu Dhabi National Oil will build the firm, called XRG, to spearhead global investments in natural gas, chemicals and low-carbon energy.



Exxon Mobil plots way back to a league of its own

IF ANYTHING DIFFERENTIATES Exxon Mobil Corp. from the rest is its ability to invest countercyclically — to be "greedy only when others are fearful," in Warren Buffett's words. Under Lee Raymond, who put Exxon and Mobil together 25 years ago in the industry's biggest merger, it was the company's sacred tenet. But that doctrine lost its luster under Rex Tillerson, who took over from Raymond in 2006 and ran Exxon for a decade. Tillerson was greedy when everyone else was greedy; under the executive who became Donald Trump's first secretary of state, the company's return on capital employed plunged, its net debt rose and it bought rivals at the very peak of the cycle.

The result was that Exxon was too weak financially to invest countercyclically by the time current Chief Executive Officer Darren Woods took over in 2017. When oil and natural gas prices plunged during the pandemic, Exxon had to retreat as everyone else did in the industry because its balance sheet was overstretched. Exxon wasn't anymore different - it was just another giant oil company.

It has taken Woods nearly a decade to restore the previous grandeur. But the job is now nearly done. When Exxon announced on Wednesday at its new headquarters near Houston its strategy for the next five years, it flagged that it would keep spending more on oil and gas projects even as rivals retreat. "Compared to our competitors, we are in a different league," Woods said. He's not wrong.

Exxon told shareholders that it plans to increase capital spending next year to \$28 billion, up from \$26 billion this year, despite fears that the global oil market will be oversupplied. From 2026 to 2030, annual spending will rise further to more than \$30 billion. If any company is aligning with Trump's mantra of the "drill, baby, drill," it's Exxon.

How Exxon has recovered its ability to set its own course is a combination of luck, strategy and a shareholder-imposed corrective.

Let's start with the corrective. Back in 2020, a small investment company called Engine No. 1 wrote to Exxon's board seeking change. At the time, many characterized the campaign as a driven by concerns about climate change. Nonsense. It was hard capitalism, and Engine No. 1 was about shareholder returns. Exxon lost

the battle and had to accept several new directors who took a critical view at spending.

The new board also put a focus on breaking the insularity of the company. Woods brought in fresh ideas, poaching executives from other industries. Today, Kathy Mikells, a former Diageo Plc executive, runs the company's finances. And Dan Ammann, a former automotive executive with only two years of experience in the energy industry, runs the central oil and gas production unit.

What followed was a relentless focus on improving returns and keeping costs under control. Exxon is now the only Big Oil company with an operating cost base lower than it was five years ago. Return on capital employed, which slid to less than 4.5% during the five years to 2019, is back to double-digit levels; it's still below the 20%-plus typical of Lee Raymond's years.

Exxon did get lucky — twice. First, because its investment in Guyana, the tiny Latin American nation bordering Venezuela and Brazil, hit a jackpot of billions of barrels in offshore oilfields. Then, the Russian invasion of Ukraine sent energy prices soaring, creating a windfall that fast-tracked a debt reduction that was already in progress. Exxon has cut its net debt to about \$15 billion, down from a peak of nearly \$70 billion in 2020, according to data compiled by Bloomberg.

For shareholders, it has been a very profitable change. Compared with five years ago, Exxon is up more than 60%, far more than rivals Chevron Corp., Shell Plc., Total-Energies SE and BP Plc. Wall Street isn't completely sold on the idea that Woods has restored Exxon to its previous glory. When the new strategy was unveiled, investors sold the company's shares. Clearly, the memory of the days of Rex Tillerson are still fresh. But those fears are overstated. Exxon is today a different animal.



JAVIER BLAS

Bloomberg

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MINT CURATOR

An Opec for solar power isn't going to serve the world well

A Chinese cartel in this field won't aid the cause of clean energy



DAVID FICKLING
is a Bloomberg Opinion columnist covering climate change and energy.



Output controls for solar panels are not likely to work as they did for oil AFP

What do you do in an energy industry that's facing its first speed bumps after decades of meteoric growth? In the case of oil, the answer in 1960 was the formation of a producer's cartel: the Organization of the Petroleum Exporting Countries (Opec). Solar power, which is going through its own growing pains this year, is looking to imitate the strategy.

More than 30 Chinese solar power producers signed up to an Opec-style agreement at their industry association's annual meeting last week, with manufacturers given quotas based on their existing capacity and forecasts of market demand. That would provide some relief from a glut over the past year that drove prices for panels and their raw materials well below costs. The crisis has pushed the big four Chinese panel-makers into losses of an expected \$1.06 billion this year.

The parallels are intriguing. China's solar power industry is offering a flow of useful energy to the global economy on par with the biggest oil producers. But it's also approaching an inflection point of the kind that Opec hit about a decade after its founding. From 1900 up to the oil crisis of 1973, crude production grew at an average 7.2% a year. Since then, it has slowed to 0.9% a year. Solar faces a similar slowdown, though from far higher starting rates. In the five years to 2013, generation from photovoltaic panels rose at about 62% a year. In the past five years, it has declined to 23%, and even bullish scenarios that put the industry well ahead of what's needed to hit net zero will see that slow further to about 10% over the rest of this decade.

Further, for all the criticism lobbed at it, there's a decent argument to be made that Opec, once weaponized by the 1973 crisis, worked. In the century between 1874 and 1974, oil hardly ever cost more than \$40 a barrel on a sustained basis, after you adjust inflation to 2023 prices. In the 50 years since, it has hardly ever cost less than that. We saw a permanent shift in the price of oil that enriched Opec's members. What's not to like if you're a solar manufacturer?

The problem for Longi Green Energy Technology, Trina Solar, Tongwei and the like is that there are fundamental differences between oil and photovoltaic panels, which will make an Opec-style cartel much harder to sustain.

One factor is the element of fate in the mix. Energy transition advocates sighed with frustration last month when Azerbaijan's President Ilham Aliyev told CoP-29 that petroleum was a "gift of God." He

wasn't exactly wrong, though. Mineral reserves are a natural geological endowment that humanity's innovative genius can't fix. No amount of knowhow will allow Japan to produce crude as cheaply as Saudi Arabia. Even the US shale boom has only succeeded in unlocking relatively high-cost reserves.

That geological fate imposes some discipline on the cartel. Every Opec member knows that Saudi Arabia's production costs are the world's lowest, so it could flood the market and destroy the competition at any moment. Similarly, though, everyone knows that Riyadh's bloated budget means its total costs can't survive such brinkmanship for long. You may only need \$3.2 a barrel to get Saudi crude out of the ground, but it costs another \$93 to pay for the lavish expenditure of the Saudi state. That mix imposes a degree of discipline on Opec's principal member.

Manufacturing is different, because innovation is decisive. One reason there is so much production capacity out there right now is that we're in the middle of a shift between two solar panel standards, known as PERC and TopCON—and possibly on the brink of a further revolution toward another, known as HJT.

Geological advantages are perpetual, but technological advantages can be eroded in a few years as research and development makes last decade's state-of-the-art products obsolete. Solar panels are ultimately semiconductors, and you only need to take one look at the changing fortunes of Intel, Nvidia and Taiwan Semiconductor Manufacturing Company to see that there are few permanent defensive moats in that industry.

Finally, you have the fact that Opec is a diplomatic alliance balanced by the competing national interests of its members, whereas solar manufacturing in 2024 is almost entirely Chinese.

If Beijing wants a solar industry that is stable and profitable, it will allow companies to form a cartel (this is pretty much what it did to the domestic coal market in 2015 after years of over-expansion). If it wants more growth in clean energy, however, it will squash any attempt to rein in an indiscipline which has been terrible for solar power companies—but great for solar power as a whole.

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Crude oil flat, IEA forecast offsets rate cut optimism

London: Crude oil prices were little changed as a forecast for ample supply in the oil market offset optimism stemming from rising expectations of a US interest rate cut. Brent crude futures were down 23 cents at \$73.29 a barrel by 1421 GMT. US West Texas Intermediate crude futures were down 27 cents at \$70.02.
REUTERS

Online

Headline	ONGC, Oil India stand to gain most from the proposed ORD Act amendment		
Publication	Moneycontrol	Edition	Online Coverage
Published Date	12 Dec 2024		

ONGC, Oil India stand to gain most from the proposed ORD Act amendment

<https://www.moneycontrol.com/news/business/ongc-oil-india-stand-to-gain-most-from-the-proposed-ord-act-amendment-12888515.html>

The Oilfields (Regulation and Development) Amendment Bill, 2024 passed by the Rajya Sabha recently now awaits the approval of the Lower House.

Parliament's winter session is set to conclude on December 20. The Indian upstream companies including ONGC and Oil India would be the biggest gainers from this amendment. The bill tabled in August by Petroleum and Natural Gas Minister Hardeep Singh Puri was approved by the Rajya Sabha on December 5. The bill aims to facilitate investments in India's oil and gas exploration projects. The proposed new law will replace the existing Oilfields (Regulation and Development) Act of 1948, which was last amended in 1969. "The objective of the changes to the Oilfields Act is to create a more investor-friendly environment and enhance the global competitiveness of future oilfield contracts by addressing long-standing concerns of exploration companies," said Rahul Chauhan, upstream technical research country lead at S&P Global Commodity Insights. Aimed at boosting investments in the sector, the bill proposes to introduce "petroleum lease" to separate oil and gas exploration projects from mining for resolving complexities around land and environmental clearances, which has often resulted in project delays. The bill also expands the definition of mineral oils to include crude oil, natural gas, petroleum, condensate, coal bed methane, oil shale, shale gas, shale oil, tight gas, tight oil and gas hydrate, and separates mining operations from petroleum operations. To better handle disputes and boost investor confidence in India's oil and gas projects, the bill proposes that the government could bring in alternative resolution methods within or outside India. The bill also decriminalises violations by replacing imprisonment with penalties. Big gainers of the proposed ORD Act Oil and Natural Gas Corporation (ONGC) The state-run oil and gas explorer ONGC has the largest upstream operations in the country. However, the company has been unable to boost production from its current fields and has been seeking collaboration with foreign players primarily for technology transfer. The company's blocks in deep-water and ultra-deep water such as in the Andamans are expected to have large hydrocarbon reserves. To carry out exploration operations in such blocks, ONGC is looking at partnerships with foreign players such as TotalEnergies, Chevron and ExxonMobil for high-end technologies. In the second quarter of FY25, crude oil production of ONGC showed a mere growth of 0.7 percent from last year. Meanwhile, the company's gas production declined to 2.1 percent in the same period. Oil India Limited (OIL) Similarly, state-run Oil India is also awaiting partnership with a global oil giant for deep water exploration expertise. The company also has offshore blocks in the Andamans and is eyeing bidding opportunities in the region to increase production. Contrary to ONGC, Oil India's crude oil output in the second quarter of fiscal 2024-25 grew by almost 5 percent from last year and gas output by nearly 4 percent in the three months. Private players The exploration activities in the country are majorly dominated by the oil PSUs, but private companies such as Reliance Industries Limited (RIL), Cairn Oil and Gas and Essar Oil and Gas are also active players. Cairn has a block in Rajasthan's Barmer district while Essar is into coal bed methane (CBM) extraction.

Headline	ONGC Eyes Technology Partnerships with Global Energy Giants		
Publication	Chemical Industry Digest	Edition	Online Coverage
Published Date	12 Dec 2024		

ONGC Eyes Technology Partnerships with Global Energy Giants

<https://chemindigest.com/ongc-with-global-energy-giants-to-enhance-offshore-operations/>

Oil and Natural Gas Corporation (ONGC) is actively pursuing technology tie-ups with global energy leaders such as Shell and Petronas. The collaborations aim to enhance operations across several offshore gas fields.

Drilling Operations Expand to New Fields The company is set to initiate drilling in new fields, including the DWN-98/2 block, which lies in the deep waters of the Bay of Bengal.

ONGC also plans to deploy floating LNG units to bolster its production capabilities.

Focus on Category-II Basins For Category-II basins like Mahanadi, Bengal, Andaman, Kutch, and Saurashtra, ONGC aims to commence drilling operations by the end of the current fiscal year.

These basins, acquired under the Open Acreage Licensing Policy (OALP), provide licence-holders the flexibility to carve out specific areas for exploration.

KG 98/2 Basin to Reach Peak Output The KG 98/2 basin is projected to achieve peak production by the end of this financial year, producing 45,000 barrels per day (bpd) of crude oil and 10 million metric standard cubic meters per day (mmscmd) of gas. Production improvements are imminent.

By month-end, there will be real changes, and production numbers will improve. We have just connected six of the 20 wells. The official company statement says that connecting more wells will definitely increase oil and gas production.

Small-Scale LNG Plant in Madhya Pradesh ONGC has collaborated with global energy giants. Together, they have embarked on a project to establish a small-scale LNG plant. The plant will be located near the Hatta gasfield in the Vindhyan basin, Madhya Pradesh. The initiative underscores the company's commitment to leveraging its resources for monetisation.

Stranded Gas Discoveries on the Agenda ONGC has approximately 80 monetisable discoveries. It is preparing to finalise three to four field development plans for its stranded gas reserves. The goal is to complete this by the end of this fiscal year.

Quarterly Production Performance In Q2 of FY25, ONGC produced 4.576 million tonnes of oil. This shows a slight increase from the 4.545 million tonnes produced in the same period of FY24.

According to projectstoday.com, it is reported that ONGC is poised to enhance its production and operational efficiency. Strategic partnerships, advanced technology, and targeted drilling initiatives will achieve this.

Headline	ONGC eyes offshore gas opportunities with Shell and Petronas		
Publication	Manufacturing Today	Edition	Online Coverage
Published Date	12 Dec 2024		

ONGC eyes offshore gas opportunities with Shell and Petronas

<https://www.manufacturingtodayindia.com/ongc-eyes-offshore-gas-opportunities-with-shell-and-petronas>

ONGC has connected six of twenty wells, expecting major production growth once all are operational.

ONGC is in conversation with global energy companies, including Shell and Petronas, to collaborate on offshore gas projects. The company is also preparing to begin drilling operations in new fields, such as the DWN-98/2 block in the Bay of Bengal's deep waters, and setting up floating LNG units.

For oil drilling, ONGC plans to start operations by the end of this fiscal year in the Category-II basins of Mahanadi, Bengal, Andaman, Kutch, and Saurashtra. These fields were acquired under the open acreage licensing policy (OALP), which allows companies to select areas they wish to explore.

The KG 98/2 basin is expected to hit peak production of 45,000 barrels per day of crude oil and 10 million standard cubic meters per day (mmscmd) of gas by the end of the financial year. ONGC has already connected six of the twenty wells, with production expected to rise significantly once all the wells are operational.

Moreover, ONGC has partnered with Indian Oil Corporation (IOCL) to establish a small-scale LNG plant near the Hatta gasfield in Madhya Pradesh's Vindhyan basin. The company currently has about 80 discoveries that can be monetised and aims to finalise three to four development plans for stranded gas fields by year-end. In Q2 of FY25, ONGC produced 4.576 million tonnes of oil, a slight increase from 4.545 million tonnes in Q2 of FY24.

Headline	Trump Presidency May Expedite Recovery Of ONGC Videsh's \$1 Billion Stuck In Dividends Manage your data		
Publication	NDTV Profit	Edition	Online Coverage
Published Date	12 Dec 2024		

Trump Presidency May Expedite Recovery Of ONGC Videsh's \$1 Billion Stuck In Dividends Manage your data

<https://www.ndtvprofit.com/business/donald-trump-presidency-may-expedite-recovery-of-ongc-videshs-1-billion-stuck-in-dividends>

ONGC Videsh has had around \$600 million in dividends stuck in Venezuela and another close to \$350 million in Russia for close to two years now.

ONGC Videsh Ltd.'s \$1 billion stuck in dividends may see the light of day with Donald Trump taking over as the US President in January, according to people close to the development. There is every possibility of a positive shift in stance once Donald Trump takes over as the next president of the US, especially towards putting a halt on Russia-Ukraine war and relaxation in US and European sanctions, including on Russia's banking system...

Headline	ONGC oil output bucks the trend after 8 years of decline		
Publication	The Economic Times	Edition	Online Coverage
Published Date	13 Dec 2024		

ONGC oil output bucks the trend after 8 years of decline

<https://economictimes.indiatimes.com/industry/energy/oil-gas/ongc-oil-output-bucks-the-trend-after-8-years-of-decline/articleshow/116264989.cms>

ONGC's crude oil production is rising after eight years of decline, thanks to a new field in the KG Basin and improved performance at Mumbai High. November saw a 3% year-on-year increase, accelerating to 4.2% in December. This positive trend is expected to continue, potentially leading to the first annual production growth since 2015-16.

New Delhi: ONGC 's production trend is beginning to turn after eight straight years of fall as a key new field in KG Basin ramps up and the old Mumbai High asset arrests decline.

ONGC's crude production rose 3% year-on-year in November to 53,804 tonnes per day (tpd) and the output growth so far in December has accelerated to 4.2% to 54,535 tpd, according to people with knowledge of the matter.

The output was marginally higher in three of the first seven months this fiscal year but there is a clear breakout in trend in December, they said, adding that production growth is expected to quicken in the January-March quarter. If the current production trend continues, ONGC may post the first annual production growth in 2024-25 after eight years, they said.

In recent years, ONGC has often drawn flak for sagging output and limited discoveries. The company's annual oil production has fallen about 14% between 2015-16 and 2023-24. Output from ageing fields, which dominate ONGC 's fleet, naturally declines after a few years in operation. "If you factor in an average natural production decline rate of 3-4% for an oilfield, the effective production rise for ONGC could be about 7-8% in December," one of the persons cited earlier said.

The chief contribution has come from production acceleration at KG-DWN-98/2 block in the Krishna Godavari basin off the eastern coast. The block, which began production at the beginning of the year at a rate of 10,000 bpd, is producing 25,000 bpd currently and is on track to touch 38-40,000 bpd by month-end, people cited above said. The full impact of the December ramp-up will reflect in January volumes.

A big morale booster for ONGC has come from the arrest in production decline in the western offshore Mumbai High asset, which includes the flagship Mumbai High field as well as Bassein and satellite, Heera and Neelam fields.

The strength of new wells, improved surface facility upkeep and better reservoir management have all contributed to the arrest in production decline in Mumbai High asset, they said. The company has deployed enhanced oil recovery techniques such as water injections, and judiciously selected development wells, helping output, they said.

ONGC produces two-thirds of India's oil and about half of natural gas. Output expansion at ONGC is crucial to India's ambition of reducing oil import dependence.

Headline	ONGC in talks with Shell, Petronas for gas ventures		
Publication	The Financial Express	Edition	Online Coverage
Published Date	12 Dec 2024		

ONGC in talks with Shell, Petronas for gas ventures

<https://www.financialexpress.com/business/industry/ongc-in-talks-with-shell-petronas-for-gas-ventures/3689719/>

ONGC produced 4.576 million tonnes in Q2FY25 against 4.545 million tonnes in Q2FY24. During April-October this fiscal, the company produced 10.3 million tonnes of oil, down from 10.6 million tonnes last year, as per official data.

State-run ONGC is discussing technology tie-ups with global energy giants like Shell and Petronas for several offshore gas fields. The company has also firmed up plans to start drilling operations in a clutch of new fields, including the promising DWN-98/2 block in the deep waters of the Bay of Bengal, in a bid to arrest a declining trend in hydrocarbon production.

We expect oil production to start growing again in the next couple of years, a senior company executive told FE. For offshore assets, we are looking at tie-ups with southeast Asian companies, Petronas and others. Even with (the UK's) Shell, we are in early stages of discussions for deep-water discoveries, floating LNG units etc, the official said, underscoring the importance of tie-ups for new ventures like small LNG units.

As for the Category II basins of Mahanadi, Bengal, Andaman, Kutch, and Saurashtra, and the Andamans, acquired under the open acreage licensing policy (OALP), drilling operations (for oil) will begin by the end of this fiscal, the person added. Under OALP blocks, the licence-holders are allowed to carve out areas they want to explore.

Talking about oil production from the KG 98/2 basin, the source said that the field is likely to reach its peak production of 45,000 barrels per day (bpd) of and 10 million metric standard cubic metres per day (mmscmd) of gas by the end of the current financial year. By month-end, there will be some real changes.. and production numbers will improve. We have just connected 6 of the 20 wells. Once these wells start getting connected for oil and gas, the production definitely is going to go up.

produced 4.576 million tonnes in Q2FY25 against 4.545 million tonnes in Q2FY24. During April-October this fiscal, the company produced 10.3 million tonnes of oil, down from 10.6 million tonnes last year, as per official data.

The company had already entered into a partnership with state-run IndianOil Corporation to set up a small-scale LNG plant near Hatta gas field in the Vindhyan basin of Madhya Pradesh.

Currently, ONGC has about 80 discoveries that are yet to be monetised. It is planning to ready three to four Field Development Plans for its stranded gas discoveries by the end of the current fiscal year.

The decline in gas production is only momentary. We have a number of discoveries which are underway in terms of field development plans and we are also trying to bring in technology improvement, the techno commercial aspect of it, said the source.

In the second quarter of the current fiscal, ONGC produced 4.912 billion cubic metres of gas, as against against 5.018 BCM in the same period of last fiscal.

The decline in growth of gas output, which was 3.6% in Q1FY25 over Q1FY24 has been brought down to 2.1% in Q2FY25 over Q2FY24.

The company expects its acreage acquisition to grow to 2.6 lakh square kilometer, against 1.5 lakh square kilometer in 2023. It is targeting an indigenous production of 40 million metric tonnes of oil equivalent (MMtoe) in the current fiscal.

Earlier, in an analyst call, the company had said that it plans to increase its cumulative production of crude oil and natural gas by 20% to 47 MMtoe comprising about 21.8 MMT of crude oil and about 25.5 BCM of gas from the current 39.45 MMtoe over the next three years.

The company opened the three oil wells of A-field of deepwater block KG-DWN-98/2 in October which aided in enhancing its total oil production to about 25,000 barrels of oil per day. It now plans to open the remaining five oil wells shortly.

Headline	Reliance, Rosneft agree on biggest ever India-Russia oil supply deal		
Publication	The Economic Times	Edition	Online Coverage
Published Date	12 Dec 2024		

Reliance, Rosneft agree on biggest ever India-Russia oil supply deal

<https://economictimes.indiatimes.com/industry/energy/oil-gas/reliance-rosneft-agree-on-biggest-ever-india-russia-oil-supply-deal/articleshow/116245274.cms>

Synopsis Russia's Rosneft has agreed to supply 500,000 barrels per day of crude to India's Reliance for 10 years in a deal worth approximately \$13 billion annually. This agreement, which accounts for 0.5% of global supply, strengthens energy ties between India and Russia amid Western sanctions. Reliance will receive Russian oil at discounted prices, with shipments starting in January 2024.

Russia's state oil firm Rosneft has agreed to supply nearly 500,000 barrels per day (bpd) of crude to Indian private refiner Reliance in the biggest ever energy deal between the two countries, three sources familiar with the deal said.

The 10-year agreement amounts to 0.5% of global supply and is worth roughly \$13 billion a year at today's prices. It would further cement energy relations between India and Russia, which is under heavy Western sanctions over its invasion of Ukraine.

Rosneft did not reply to requests for comments.

Reliance said it works with international suppliers, including from Russia, and deals are based on market conditions. The company declined further comment on commercial matters, citing the confidentiality of supply agreements.

The deal comes ahead of the planned visit by Russian President Vladimir Putin to India and after U.S. President-elect Donald Trump said he wants to push Moscow and Kyiv to stop the war as soon as he takes office in January.

Russian oil accounts for more than a third of India's energy imports. India became the largest importer of Russian crude after the European Union, previously the top buyer, imposed sanctions on Russian oil imports in response to the 2022 invasion of Ukraine.

India has no sanctions on Russian oil, so refiners there have cashed in on the cheaper crude supply. Sanctions have made Russian oil cheaper than rival grades by at least \$3 to \$4 per barrel.

India's rising Russian imports have come at the expense of rival Middle Eastern producers. The Reliance-Rosneft deal would represent another challenge for competitors, including Saudi Arabia.

Competition among oil producers for a share of the Indian market is hot because it is one of the fastest-growing energy markets, and is becoming more important as a driver of global demand as growth in top importer China slows.

Under the deal, Rosneft would deliver 20-21 Aframax-sized cargoes (80,000 to 100,000 metric tons) of various Russian crude grades and three cargoes of about 100,000 tons each of fuel oil each month, the three sources said.

The shipments will be supplied for Reliance's refining complex, the world's biggest, at Jamnagar in the western state of Gujarat.

Two sources said Reliance and Rosneft will review pricing and volumes every year under the deal to factor in oil markets dynamics.

In 2024, Reliance had a deal with Rosneft to purchase 3 million barrels of crude a month. Rosneft has been also selling crude to Reliance via intermediaries on a regular basis.

The new deal accounts for roughly a half of Rosneft's seaborne oil exports from Russian ports, which leaves not much supply available for other traders and middlemen, one source said.

From January to October, Reliance imported an average 405,000 barrels per day of Russian oil, up from 388,500 bpd in the same period last year, according to tanker data obtained from sources.

The new deal between Rosneft and Reliance was discussed and approved during Rosneft's board meeting in November, two of the sources said.

Supplies will start from January and are set to continue for 10 years with an option to extend the deal for another 10 years, the three sources said.

The pricing of the grades to be supplied on delivered basis is set at differentials to the average Dubai price of the loading month, according to the sources.

Premiums for the light sweet grades were set at around \$1.50 a barrel for ESPO, Sokol at about \$2 per barrel and Siberian Light at about \$1 per barrel against Dubai quotes for 2025, one source said.

The majority of the supply will be medium-sulphur and diesel-rich Russian Urals that are most popular with Indian refiners and will be priced at a discount of \$3 per barrel to Dubai quotes for the following year, two sources said.

Headline	IIT ISM Dhanbad hosts international conference on 'Sustainability through Transition'		
Publication	The Jharkhand Story	Edition	Online Coverage
Published Date	12 Dec 2024		

IIT ISM Dhanbad hosts international conference on 'Sustainability through Transition'

<https://thejharkhandstory.co.in/iit-ism-dhanbad-hosts-international-conference-on-sustainability-through-transition/>

SUBHASH MISHRA Dhanbad, Dec 12: The Department of Petroleum Engineering at IIT (ISM) Dhanbad organized an international conference titled 'Sustainability through Transition' (ICPHD 2024) on Thursday.

The event brought together leading experts, researchers, and policymakers to discuss sustainable energy practices and innovation.

The conference featured Dr. Pallavi Jain Govil, Director General of the Directorate General of Hydrocarbons (DGH), as the chief guest. Dr. Kaustav Nag, Additional Director General (Exploration) of DGH, attended as the guest of honor. Other notable attendees included Saloma Yamdo, Director of Exploration and Production at Oil India, and Prof. Sukumar Mishra, Director of IIT (ISM) Dhanbad.

Union Minister of Petroleum and Natural Gas, Hardeep Singh Puri, extended his support to the event through a video message, citing parliamentary commitments in Delhi as the reason for his absence.

The conference saw participation from over 250 delegates from India and abroad, showcasing a wide array of expertise and perspectives. The agenda featured three plenary lectures, 28 keynote addresses, eight invited speeches, 87 oral presentations, and 32 poster presentations spread across 28 technical sessions.

An official from the Department of Petroleum Engineering remarked, This conference aimed at integrating conventional and unconventional energy sources, fostering collaboration between industry and academia, and establishing a common platform for students, faculty, researchers, engineers, and policymakers to achieve energy security through sustainable practices.

The conference covered a broad range of topics, including conventional and unconventional oil and gas, carbon capture, utilization and storage (CCUS), geothermal energy, hydrogen, artificial intelligence/machine learning (AI/ML), and related policy discussions.

Financial and logistical support was provided by prominent organizations such as Oil and Natural Gas Ltd (ONGC), Oil India, SunPetro, ONGC Videsh Ltd, the Department of Science and Technology (ANRF), Ahram Oil, Rara Energy, and Artoson-Tata.

A faculty member noted that the ICPHD 2024 conference exemplified IIT (ISM) Dhanbad's commitment to advancing research and fostering collaboration in petroleum engineering and sustainable energy solutions. The event served as a platform to integrate ideas and initiatives that will contribute to global energy security and sustainability.